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Vol. VI

TRANSCRIPT OF RECORD

Supreme Court of the United States

OCTOBER TERM, 1936.

No. 539

THE OHIO BELL TELEPHONE COMPANY,
APPELLANT,

vs.

THE PUBLIC UTILITIES COMMISSION OF OHIO

APPEAL FROM THE SUPREME COURT OF THE STATE OF OHIO

FILED NOVEMBER 20, 1936.

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By Commissioner Geiger:

Q. Let me ask the question, see, Mr. Herbert, if we can get to the point that we want to arrive at. You were instructed by the order of the Commission to fix these new rates, a new schedule for all classes of intrastate service furnished in the State of Ohio, giving first consideration to a proper reduction of the increase charged in the several exchanges in the State of Ohio. Now in the first place, did you give any consideration to the increases and, if so, what consideration did you give to them in making these new schedules?

A. We gave first consideration to those.

Q. You mean to say you made the reduction of rates that had been increased before you sought the reduction of any other rate?

A. We looked to see if that seemed a reasonable thing.

Q. Suppose you found in your judgment it wasn't reasonable, then what did you do?

A. We didn't make it if it appeared unreasonable.

Q. What?

A. We did give it first consideration and if it looked unreasonable we didn't do it.

[fol. 6128] Q. When you say you gave it first consideration, you just considered it first and discarded it if you thought it ought to be discarded?

A. If it appeared unreasonable, we thought that was the right answer.

Q. So you did not follow the rule that the Commission sought to give you and make your first effort to reduce the total rate——

A. We did exactly that, Judge Geiger.

Q. But did you do that?

A. Absolutely.

Q. Did you carry that into execution?

A. Yes, sir.

Q. Well, that is fine. And you reduced it then for all of the increased rates to the extent that would be necessary in order that that exchange produced its proportionate amount of the reduced income over the entire system ordered by the Commission?

A. I don't read the instructions to necessitate that answer, no.

Q. You didn't do that?

A. We did where—we followed your order.

Q. Let me ask it this way, let's get down to the answer, let's not fence so much——

Mr. Thompson: I subject that the witness is not fencing, Your Honor. I think we are entitled to have considerate and courteous treatment in this matter. This witness has certainly conducted himself like a gentleman.

Commissioner Geiger: No more observations. Gentlemen, this is a hot day and we are all a little nervous.

Mr. Thompson: I know it.

Commissioner Geiger: You have produced a given decrease in the total in the Cleveland rate, is that correct?

The Witness: No, we had to produce $1,822,000.00 in the State of Ohio. I didn't read in your order anything advis- [fol. 6129] ing us in the Cleveland rate.

By Commissioner Geiger:

Q. All right. Now, having to produce that for the state of Ohio, how do you allocate to the several reductions which you have here reported, how did you know how much to reduce the Cleveland rate?

A. We didn't know how much. We did the best we could, calculating to get that $1,822,000.00.

Q. What guided you in your selection of the amount that you would reduce Cleveland's subscription?

A. We gave first consideration to those rates which had been increased under bond and made certain reductions and then cut and tried until we arrived at rates which, applied to the stations, would give the $1,822,000.00.

Q. Well, could you tell the Commission whether or not the net result of your calculations and cutting and trying has produced a rate for the several exchanges over the State of Ohio that gives fair consideration to each of them and fair consideration to the increases that were put into effect by the increased rates?

A. No, I would say we haven't, Judge Geiger. Your order precluded that.

Q. What have you done? Tell us in so many words.

A. We have made a calculation giving full consideration to rates collected under bond and then, but cutting and trying, reducing other rates so that in the various exchanges, applying these rates and assuming the stations would not change in their classification, we arrived at 1822 odd thou-

sand dollars less gross revenue for 1925 than the gross revenue which had been collected that year.

Q. Well now just one other question. Having arrived at that much less gross revenue, how would you allocate the reduction of the several exchanges each to the other so that you would give each a fair reduction in comparison to the other?

A. I haven't made any statement that we gave each a [fol. 6130] fair reduction compared to the other, Judge Geiger.

Q. Now then so far as I am concerned——

A. We did the best we could.

Q. It will be turned down and you will be ordered to file one in which you do give fair——

A. We followed your order just as well as we could.

Commissioner Geiger: Well, we will give you a new order then.

Mr. Thompson: We will meet that issue when it arises, Your Honor. We have never claimed any reduction should be made. We didn't offer this as a rate schedule. We have tried in good faith to comply with the order which this Commission made. Now if the job that we have done doesn't suit you, why, you can make any further order that you please and we will meet that when it comes.

Commissioner Geiger: Well, we want to just find out what you have done. What we want to do is to treat all rate payers in the State of Ohio who are in this case fairly, evenly, equitably, and whatever reduction there may be that is to be apportioned over the state of Ohio should be a fair reduction to all rate-payers. But, as we have said before, special consideration should first be given to those whose rates were increased. Now if we were wrong in that, we will have to modify that viewpoint.

Mr. Thompson: May I burden you just for one moment with a statement, because I want the company's position to be perfectly clear? We tried in good faith to do a job within certain limitations and restrictions that you had imposed on us. We had said to you consistently from the start that you can't make a refund except by considering whether there are excess earnings in a given exchange. Now we say to you now that you can't do it that way. But there [fol. 6131] is no accounting method or short-cut by which you can evade the statutory requirement. So that we did

the best we could under the limitations imposed, but we don't advance this as a fair rate schedule, we never have, and you will never get at it this way.

Commissioner Geiger: Well, do you mean to say, Mr. Thompson, that in your judgment we have got to go through this intolerable delay and turn back the clock ten years?

Mr. Thompson: I think you have to follow the statute.

Commissioner Geiger: Well, we will attend to that. We are not going to turn the clock back ten years. We are getting too old now, and we haven't got ten years more of our life to spend on this.

Mr. Thompson: I think we ought not to be blamed, Your Honor, in good faith for trying to do the best that we can with what we regard as a wholly impossible job.

Commissioner Geiger: Well, all right. Now, Mr. Herbert, do you wish to go forward?

By Mr. Herbert:

Q. I am trying to meet and question the witness on exactly the basis that the company claims they filed this page 23. I am just asking you, so that we don't debate the terminology, to treat these rates which show on that page 23 as rates for the moment, whether they are proposed by the company or adopted by the Commission or what, but I am asking you to agree with me that what you contemplate in that schedule there is a two and one-half cent reduction. I don't say that you propose it or anything of the sort. I say that you have in contemplation that that figure means 2½ cents per station less than the $5.50 rate for 85 calls which is in effect?

A. I haven't any figures of that kind, Mr. Herbert.

[fol. 6132] Q. Now, do you know what your existing business rate is in Cleveland, Mr. Allen, presently being collected?

A. What rate do you refer to? We have more than one.

Q. Business station rate?

A. Extension station?

Q. No, I am talking about the business rate.

A. Individual line?

Q. Individual line?

A. That rate is $5.50 for 85 messages.

Q. 85 messages. And the rate which appears on this sheet 23 is $5.25 for 80 messages, is that correct?

A. That is right.

Q. And to make those rates comparable for the purpose of this point, you would have to add five calls at 4½ cents apiece, wouldn't you, to compare it to the existing rate of $5.50 for 85 calls? In other words, anyone who used an individual business station and used 85 calls on it in one month would profit 2½ cents by the difference between these two rates, wouldn't they?

A. That is right.

Q. So that for any person using an individual line and using 85 calls a month they would profit by 2½ cents a month if the rate appearing on page 23 were in effect instead of the rate now in effect?

A. I think that calculation is correct.

Q. All right, now, going to the single residence line, the existing rate is what?

A. Existing rate is $5.00 for 100 messages.

Q. So that to make the rate on sheet 23 of the April 17th data comparable for a user who used a phone 100 calls a month, you would have to add 40 cents to the $4.25 which appears on that sheet?

A. That is correct.

Q. Making it $4.65?

A. That is correct.

Q. A difference of 35 cents. Otherwise there would be no difference, no matter how large the use, would there, be- [fol. 6133] cause the measured service rates are the same?

A. I think that is correct.

Q. And on the two party line by the same calculation, the difference would be 27½ cents to make the rates comparable, wouldn't it?

A. I think that is correct.

Q. And on a four party line there is no difference in the effect between the rates shown on Sheet 23 and the present rates in effect?

A. I wouldn't agree to that, no.

Q. Well, will you tell us the difference?

A. Well, we show, the present rate is $2.75 and the proposed rate is $2.50.

Q. For how many calls?

A. Present rate is $2.75 for 65 messages, proposed rate is $2.50 for 60 messages.

Q. And how much for each additional message?

A. Five cents.

Q. So that for 65 messages it would be $2.75, isn't that right?

A. That is a different question. I will answer that yes.

Q. I said making the rates comparable on the same number of station calls.

A. I didn't understand that.

Q. That is on the same amount of measured service.

A. I didn't get that.

By Commissioner Geiger:

Q. Well now, may I ask a question there in order that I get some light on this? As I understand, on the measured rate in the City of Cleveland the only place that anybody begins to enjoy a lessened rate is when they have passed the maximum number of calls that they may have at a certain rate and step into another block of figures, is that right?

A. No.

Q. Well now, suppose a person only uses their phone ten times, is there a reduction to them?

A. Yes.

By Mr. Herbert:

Q. The basic rate is the same?

A. No, the rate is $5.00 on an individual line at the present time and the proposed rate was $4.25. The case that Judge Geiger mentioned would get 75 cents.

[fol. 6134] Q. That individual would save 75 cents?

A. Yes, sir.

Commissioner Geiger: Do I understand then that, irrespective of whether a person uses enough to get into the next lower bracket, that they do get a reduction of the measured number of messages they send?

Mr. Herbert: The rates shown on this page 23 that we are discussing, Your Honor, in most instances show a reduced minimum number of calls.

Mr. Thompson: May I ask this question, are there many users of your telephone service in Cleveland and other cities in the state, no matter what the average number of calls may be, who stay within the minimum?

The Witness: The majority of the subscribers in Cleveland stay within the minimum.

Mr. Thompson: So that in a number of the schedules on page 23 that Mr. Herbert has called your attention to, these

hypothetical rates would result in the reduction shown there for the minimum users?

The Witness: That is correct.

Q. In preparing this data did you make an analysis of the bills paid by users in those classifications for 1925?

A. No, sir.

Q. You have stated that a majority of u-ers in each class stay within the minimum?

A. Yes, sir.

Q. Do you have figures on that?

A. We have general figures on that.

Q. Well then you are unable to say just exactly what percentages of the users in each class stay within the minimum or exceed the minimum?

A. No, I am not prepared with that detail.

[fol. 6135] Q. Was that detail prepared in preparing this sheet, or do you know?

A. We know in general what does——

Q. Mr. Allen, wouldn't it be essential to have exactly detailed information in order to arrive at the figures shown in your Column "B"?

A. We have the detail necessary to correctly arrive at Column "B".

Q. Well, was Column "B" correctly arrived at?

A. I would say it was.

Q. Well, was it arrived at on that detail?

A. I am not——

Q. You have stated now that in your opinion a majority of the users in these various classifications stay within their minimum allowed number of calls?

A. That is correct.

Mr. Thompson: I am sure Mr. Herbert will not insist on that question when he remembers that what Mr. Allen has said is that these figures are applying the reduced rates to the service that was actually rendered by the company in that year.

Mr. Herbert: Well, in other words, every bill in Cleveland was recalculated in arriving at the figures under caption "B".

Mr. Thompson: I don't know what the formula was, but I think you may be very certain it was correctly done.

Mr. Shapiro: It would be helpful to the Commission, what we are trying to drive at is what formula was applied, and

nobody seems to know. Some formula must have been used.

Mr. Thompson: Mr. Allen said he doesn't know what the formula is.

Mr. Shapiro: Somebody ought to know.

Mr. Herbert: Our contention is that those rates, applied to anybody using the same amount of service monthly, would result in a net reduction to the business man of 2½ cents a [fol. 6136] month, of the single line residence user 35 cents a month, and of the two party line users 27½ a month and nothing to the 4 party line user.

Mr. Thompson: Proceeding upon the assumption that each man used the exact number of calls specified.

Mr. Herbert: Average.

Mr. Thompson: Well, your average won't do you any good.

Mr. Herbert: Assuming that each man uses the number of calls which are the minimum number now allowed.

Mr. Thompson: And no more and no less.

Mr. Herbert: Oh, any amount more, his bill doesn't change.

Mr. Thompson: But no less.

Mr. Herbert: If he uses the amount of calls——

The Witness: That assumption is entirely unwarranted.

Q. That is what I am trying to get at, what data have you to say that that assumption is wrong? If you have, will you furnish it to us?

A. The majority of our residence subscribers use less than the minimum number of calls.

Q. You mean in all classes, one party, two party, four party?

A. Yes, in all classes.

By Commissioner Geiger:

Q. So any reduction in the rate for service that exceeded the minimum, calls that were above the minimum provided, wouldn't be of much value to anyone?

A. It would be of the value shown here.

Q. It would be of the value to those that used them, but you say that few use them? In other words as I understand you to say, you are selling the measured rate that is above the minimum at a low price, but nobody buys it so consequently nobody gets any benefit?

A. I have said repeatedly that the majority of our sub-

scribers use less than the minimum and would participate [fol. 6137] in the reduced rates shown on page 23, and I again repeat it.

Q. Well, but you have also made the reduction in the price, the measured price of that that exceeds the minimum, have you not?

A. No, not in additional calls.

Q. All right then, I am mistaken.

By Mr. Herbert:

Q. How did you arrive at, for example, 90 calls as the maximum number allowable under single line residence service?

A. We just assumed that number in setting up a hypothetical schedule to meet, as well as we could, the order of the Commission.

Q. Do you know the maximum number of calls allowable in Detroit?

A. No, sir.

Q. Do you know the maximum number of calls allowable in the Chicago area?

A. No, sir.

Q. Was any other city of a size comparable to Cleveland considered in your preparation of these figures?

Mr. Thompson: To which question the respondent objects. This is a calculation made by the company relating to 1925. Now it can make no difference whether some other city was considered or not unless it should appear that all the factors affecting a rate situation were the same or comparable in the two cities, unless you know about the value of the property, the revenues, the operating expenses.

Commissioner Geiger: What do you say, Mr. Herbert, to that?

Mr. Herbert: I just merely asked the question whether they considered any other city. He objects to it.

Commissioner Geiger: What do you say, Judge?

Commissioner Schaber: I don't think the question is proper.

Commissioner Geiger: Objection sustained. Exceptions noted.

[fol. 6138] Q. Well then, Mr. Allen, it was necessary, in order to arrive at the figures shown in Column "B," to recalculate every consumer's bill as of 1925, wasn't it?

A. No, sir.

Q. Then how were those figures arrived at in Column "B"?

A. By averages based on our general knowledge of the conditions.

Q. All right then, you know that a certain percentage of your single line residence users for example, didn't use 95 calls, but used 90 calls, is that it?

A. We have general figures, we have data of that general nature. I am not prepared to give you those kind of figures.

Q. I am not trying to attack your methods, Mr. Allen. I am trying to find out how you got that ten million for 1925.

A. By applying the rates as shown in Paragraph d to the stations as they existed in the year 1925.

Q. And the application involves a change of maximum allowances in each case, doesn't it?

A. Yes.

Q. And you say that could be done without applying them to the actual record of the individual user as to the number of calls he made per month?

A. It would be rediculous to do a thing of that kind, Mr. Herbert. We don't do rates that way.

Q. I agree it would.

A. We were ordered to do this within 90 days and I have testified that this is a correct application and that the results are correct. But it would be ridiculous to refigure 200,000 subscribers' bills on a theoretical——

Q. I am asking you to give us some substantiating evidence as to how you arrived at the figures shown in Column B on that page 23, more than your statement that you had——

A. I haven't any such figures with me.

Q. You haven't anything else to substantiate that column [fol. 6139] B with other than your statement that it was correctly arrived at?

A. Nothing with me today.

Q. Can't you tell us the method?

A. I have told you the method.

By Commissioner Geiger:

Q. Well, can anyone else do it?

A. Well, if you want further details we can bring our people down.

Mr. Shapiro: Not the details, it is the formula we are trying to find here.

Mr. Thompson: We were asked, we are here on a rule to show cause. We furnished this data more than three months ago. We have been asked for nothing, no supporting data. We came down here this morning with whatever records we used in Cleveland. We don't justify this as a rate schedule, but if you want whatever data we used and will give us time, we will produce it.

Commissioner Geiger: Well now it would be perfectly preposterous to take up your time and our time to produce a lot of stuff that when it is produced, it isn't correct.

Mr. Herbert: We wholly agree with them.

Mr. Thompson: If it isn't correct—I don't understand the Commissioner's suggestion.

Commissioner Geiger: That doesn't get to a just reduction apportioned as we said it should be apportioned. Now you said that you gave some consideration to our order and then departed from it.

Mr. Thompson: I don't understand that at all. I understand that we attempted to follow your order, that the witness so stated.

The Witness: And so states again.

Mr. Herbert: We would like to have some method stated [fol. 6140] to us whereby we can relate these apparent reductions insofar as they apply to an individual, these gross amounts which average five per cent of the total collections in the Cleveland area.

Mr. Thompson: Mr. Herbert, Mr. Brett, the chief accountant of the company, is here. Mr. Allen didn't prepare these figures. Mr. Brett can't produce the figures, but he can tell you how it was done, how those figures were arrived at.

Mr. Herbert: Mr. Brett maybe can answer our question.

Mr. Thompson: No doubt about that. And I am saying now if the Commission desires the data, we will bring it here.

Commissioner Geiger: Well, we don't want a lot of data furnished that don't accomplish anything.

Mr. Thompson: Mr. Brett is here if you care——

Commissioner Geiger: Well, do you think Mr. Brett knows more about it than this gentleman?

Mr. Thompson: No, I think Mr. Brett knows more about the accounting details, but I think Mr. Allen knows how this was done.

By Commissioner Geiger:

Q. Let me ask a question to see if I can get somewhere that will be a foundation at least to start from. Now you had bonds put up for your excess collections from the time that you advanced the rate and continually knew how much the rate in every given exchange produced under that bond that would be subject to be given back, turned back, did you not?

A. That is shown on this record.

Q. That is that amount there in Column "C"?

A. Column "D".

Q. "D"?

A. Yes, sir.

Q. Well then did you take any exchange and fix the new rates in correspondence with Column D, which was the excess collection under the bond?

[fol. 6141] Mr. Herbert: Not necessarily.

A. No. We gave consideration to that and in Cleveland Column C shows the reduction, which is considerably more than the amount shown in Column D.

Mr. Herbert: What I am trying to find out is how these totals were calculated in the light of these negligible changes in rate.

Mr. Thompson: Why don't you call Mr. Brett?

The Witness: Calculated by applying these rates to the various average classification of the stations as our records show their uses to be.

By Mr. Herbert:

Q. Then your classification of stations shows average use per station, your classifications are averages, aren't they?

A. You can ask Mr. Brett that detail.

Mr. Thompson: Mr. Herbert, Mr. Brett is here and ready to testify if you want to ask him any question.

By Commissioner Schaber:

Q. I want to just ask Mr. Allen, now in Column "D" on page 23 you report having collected under bond in the City of Cleveland in 1925, $86,717.00?

A. Yes, sir.

Q. That represents the amount realized from the increased rate that was protested, is that correct?

A. I think that is correct, yes, sir.

Q. Now you have submitted figures here in accordance with our order that, had they been in effect, would have reduced the revenues that year in Cleveland $475,604.00?

A. That is correct.

Q. That is over five times as much collected under bond?

A. Yes, sir.

Q. Then you have in fact wiped out in this new proposal here all of the increase in Cleveland that was protested?

[fol. 6142] A. Well, we have reduced the gross collections by, as you say, about five times the amount.

Q. That gave all consideration to the increase then in Cleveland that was protested and wiped that out entirely and three hundred and some thousand dollars more?

A. We gave first consideration to it, yes, sir.

Q. Then the—let's call it schedule for the sake of our question—the schedule then that we are now discussing would bring a reduction in revenues below that which was realized prior to the time this new schedule that was protested was put into effect?

A. Well, we would have to assume there that we had exactly the same number of stations in the same classification.

Commissioner Schaber: Yes, certainly, on that assumption. That is all.

By Mr. Thompson:

Q. I have just one question or two I would like to ask Mr. Allen. You don't measure the value of telephone service merely by the outgoing calls placed by a subscriber, do you?

A. No, sir. There are many subscribers whose great use for the telephone is incoming business.

Q. Now does the Ohio Bell Telephone Company maintain at its office in Cleveland a large amount of traffic data from which you can get the rate of call at a given time, the calling rate at a given time, and the usage at a given time?

A. Yes, sir.

Q. Is that data very voluminous, Mr. Allen?

A. It is.

Q. And do those calling rates and the average usage per subscriber vary from month to month and year to year?

A. They do.

Q. It is information that you couldn't possibly carry in your mind, isn't that true?

A. It would be very difficult and rather useless.

[fol. 6143] Q. Now in the preparation of this rate and revenue data and estimate which the company filed on April 17th in response to the Commission's orders of January 16th and March 1st, 1934, I will ask you whether the hypothetical rates included in your return here relate wholly to the year 1925?

A. That is correct, as ordered by the Commission.

Q. And what you were attempting to do, as I understand you, and what you did do was to take a reduction of $1,822,000.00 which had been found by the Commission as the claimed excess revenue of the company for that year arising out of its entire intrastate service in Ohio, toll and exchange, and distributed it as nearly as you could on the basis of the Commission's order?

A. That is correct.

Q. And you have not submitted this data to the Commission or claimed that this was a rate schedule which was proposed by the Ohio Bell Telephone Company or a rate schedule of the kind that you would construct if you were free to proceed upon your own initiative?

A. That is correct.

By Commissioner Geiger:

Q. Now wherein does it differ from a scientific rate structure that you would set up if you were to set up a rate structure that would produce that much less revenue, wherein would you make your changes?

A. No scientific rate schedule could be set up producing that reduction in revenue and following the order of January 16 and March 1 of the Commission.

Q. All right, let's put it another way, if you could write the order of January 16th, 1934, in order to make a rate structure that would produce annually $1,822,000.00 less than had been produced by the former rate, how would you do it?

A. I don't think it could be done.

[fol. 6144] Q. You mean to say that it is impossible to do

that thing? Why is it impossible, because rates are not scientific and never have been scientific?

A. Rates based on those assumptions would be far from scientific.

Q. What assumptions do you mean? Write your own assumptions. If you were instructed to write a new rate for all of these exchanges involved in this state-wide case so as to produce $1,822,000.00 less than was produced in 1925 by the rates then in force, what would you *to* do to accomplish that scientifically and properly?

A. Well, in order to produce a schedule that would be proper and scientific there are certain rates and certain of these exchanges that would have to be increased above where they are now.

Q. Yes. You mean you couldn't do it by a reduction, you would have to do it by an adjustment between the present rates and the rates that you would put into effect?

A. You couldn't do it by a reduction, giving first consideration to the rates that were collected under bond, because those rates that were collected under bond were increased in order to try to make the schedules more scientific.

Q. Well then this is true, that your schedule never has been scie*itn*fic as between different ex*hcna*ges?

A. The rates that were put in under bond made it a step in that direction.

Q. You never sought to reduce any rates, did you? When you were putting new rates in under bond, you never put in a corresponding reduction in order to balance an increased rate against a rate that was too high?

A. Well, I am not familiar with that data, but I am familiar enough so that I am willing to make the statement that we did make certain reductions in rates at the time that [fol. 6145] some of these other increases were put in and also that during the testimony in this case an additional proposal on rates was proposed, increased further certain rates and reducing some rates.

Q. Well, would you or would you not say generally that this schedule, we will call it, that you have submitted, under the date of April 17th would produce $1,822,000.00 less as of 1925?

A. Assuming the same stations.

Q. Assuming that all other things were the same?

A. That is correct.

Q. But you would say it is still not a scientific rate?

A. I would say it is even less scientific than the existing rate necessarily from the fact that these rates were put in under bond improved the science of the schedules and this now reduces that.

By Mr. Herbert:

Q. You mean by that, any reduction is unscientific?

A. No, sir.

Q. Well, do you say that it is impossible to construct a scientific rate structure?

A. No, sir.

Q. Applicable to 1925 that would produce $1,822,000.00 less than was literally produced in 1925?

A. No, sir. It is impossible to follow the commission's order and do that.

By Commissioner Geiger:

Q. Well you have said that a number of times and I have asked you how would you change the order if you had the writing of the order yourself so you could write a scientific rate?

A. I would leave it open to increase certain rates that were too low and to decrease certain other rates. Just because a rate had been put in under bond I wouldn't say that that meant that it necessarily should be given first consideration.

By Mr. Herbert:

Q. Well then there was no scientific application by you [fol. 6146] or the group that you conferred with in arriving at the rates which appear on page 23 of your rate and revenue data furnished April 17th, 1934?

A. We did the best job we could, under the limitations put on us by the Commission's order.

By Commissioner Geiger:

Q. But the limitation that gave you trouble was that the Commission didn't permit you to raise a rate? If the permission had been given to raise a rate, then there would have been no trouble?

A. The order particularly giving first consideration to rates that had been increased under bond.

Q. Had you been permitted to raise certain rates as well as reduce certain rates, then you could have got a scientific rate?

A. A reasonably scientific rate.

Q. But, not being permitted to raise a rate but only being permitted to reduce a rate, then you could not give a scientific result of a rate study and that was mainly the reason?

A. Those are not my words, Judge.

Q. Well, I am asking you.

A. No.

Q. Well, what was the main reason?

A. The qualifications in the order requesting first consideration to the rates which had been put in under bond was a very serious handicap in aiming towards a scientific schedule.

Commissioner Schaber: The order asked you to give consideration to increased rates, not just those that were increased under bond. You increased some even where no bond was filed.

By Mr. Herbert:

Q. There is no rate in the Cleveland Exchange area now being collected under bond which you have changed in any way in the calculations shown on sheet 23 of your data submitted April 17th, is there?

A. I think the extension rate is changed.

[fol. 6147] Q. The extension rate, the business extension was raised from 75 cents to a dollar under the Pence Law, wasn't it?

A. I can not answer it.

Q. I mean under your application to increase rates in the Cleveland area. And you still use a dollar in your calculations on this page 23, don't you?

Mr. Thompson: May I call your attention, Mr. Commissioner, to your order of March 1st, I don't know what your order of January 16th was in this respect, but you directed us to give first consideration to the increased rates under bond.

Mr. Herbert: That is just the point I am going to, Mr. Thompson.

Commissioner Schaber: Referring to the order of January 16——

Mr. Thompson: I think there are a great many differences in the two orders, but this is the order where you told us to give first consideration to the rates increased under bond, if I interpret it correctly.

Commissioner Schaber: Well, I stand corrected.

Mr. Thompson: Well, I just want to be sure. I thought when you first made the statement that you were right, but Mr. Van Duzer calls my attention to the fact that in this last order, which we assumed was, as you said, nunc pro tunc for your order of January 16th, you said give first consideration to the revenue collected under bond.

By Commissioner Geiger:

Q. Now, did you in apportioning your reductions to the various exchanges involved in the rate case give consideration to the amount collected in each exchange under bond?

A. We did.

Q. So that there is this relation between the several [fol. 6148] changes that relate to the reduction that you have shown in this filing of April 17th that there was the bond in each exchange which indicated that that was the proper apportionment of your total reduction in the several exchanges, provided you followed the Commission's order.

A. We were only ordered to give consideration, and if there were other prevailing reasons——

Q. Well now, I think I made myself so plain that I ought not to be misunderstood. What I want to know is when you took the reduction of $1,822,000.00 and reported it back here that it would be produced by these changes in rates, did you allocate that amount properly between the several exchanges on the basis of the amount collected in each under bond?

A. Yes, giving due consideration to all those factors.

Commissioner Geiger: All right.

By Mr. Herbert:

Q. Now, will you tell us what rate on this Cleveland exchange, page 23, that differs from any rate now in effect, constitutes a reduction of any rate now being collected under bond?

A. No, I haven't——

Q. The fact is there is no rate there that is a reduction of a rate now being collected under bond, isn't that a fact?

A. I can't say that, I haven't the Cleveland rates before me.

Commissioner Geiger: Well, do you mean to say then that you are not sure that Cleveland is getting a reduction in

the rate that was collected under bond? There was only one rate in Cleveland that was raised, wasn't there, and that was the measured service for residents?

Mr. Herbert: Over 250 calls on the business line. That was the only raise.

The Witness: No change in the residence rate in Cleveland.

[fol. 6149] Mr. Herbert: And they don't contemplate any change in that rate on this sheet 23, that is, for calculating purposes in 1925.

Commissioner Geiger: Not about this, but about the protested rate, was it only business exchanges that were protested?

Mr. Herbert: Only the measured service above 250 calls, a difference of a half a cent a call.

Commissioner Geiger: There were no raises in the residence rates?

Mr. Herbert: Not above the 1920 rates.

[fol. 6150] And also FREDERICK B. BRETT, called as a witness on behalf of the Commission, being first duly sworn, testified as follows:

Examined by Commissioner Geiger:

Q. Will you give your name?

A. Frederick B. Brett.

Q. And you live where?

A. 1519 Rosewood Avenue, Lakewood, Ohio.

Q. What is your position with the Ohio Bell Telephone Company?

A. I occupy the position of Chief Accountant for the Ohio Bell Telephone Company.

Q. You have occupied that position for many years I presume?

A. Since 1929.

Q. And you are thoroughly familiar with the accounting system and rate-making for the Bell Telephone?

A. I am no rate expert no, sir. I am familiar with the accounting but I am no rate expert.

Q. What did you have to do with this memorandum that was submitted by the company to the Commission under the date of April 17th, 1934?

A. I furnished the data which could be taken from the company's records and could be calculated from the company's records that is included in this rate and revenue data estimate.

Q. Now does that in your judgment show a new rate that, if put in effect as of 1925, under conditions then existing and under the assumption that conditions would not alter so as to affect the rate from other causes, would have produced $1,822,000.00 within all the exchanges less than was really produced?

A. That is right, it would have reduced our net income, $1,822,000.00 in 1925.

[fol. 6151] Q. In considering the apportionment of those reductions were they fairly apportioned between the several exchanges so that each exchange within the entire group should have its proper proportion of reduction?

A. Well, of course I don't know what you mean by fairly proportionate among the various exchanges.

Q. It was based on the income shown by the bonds that were put up in the various exchanges, was it?

A. I understood that they considered all of the rates that were being collected by the company.

Q. Under bond?

A. All the rates, and of course in compliance with your order they had to give first consideration to a proper reduction in increases in rates collected under bond.

Q. Well now, let me ask you the general question, I see your point, but the general question is has this schedule that you have here reported justly and fairly, if not absolutely accurately, apportioned the reduction among the several exchanges in proportion to the income paid into those several exchanges for service rendered by the company?

A. Well, I couldn't say that that exactly followed.

Q. I wouldn't expect it to exactly follow, nobody could get it exactly. How are the several amounts that you have reported here as reductions to the several exchanges been ascertained in relation each to the other?

A. Well, not having prepared those particular hypothetical rates and not having applied them to the several exchanges I couldn't tell you exactly. I can give you my opinion of how it was done.

Q. Let's hear your opinion.

A. In the first place, they had $1,822,000.00 that they had to reach by a reduction in rates. Now, looking over all the

rates, considering them all, they could only use reductions, [fol. 6152] or I might put it the other way, they had to use reductions in a great many rates which reduced rate, if applied to the services actually rendered in 1925, would have produced a reduction in their net income of this $1,822,000.00. Now, that was what was done.

Q. That is very plain, there is no difficulty about that. But as between the several exchanges how are we enabled to say that each exchange has enjoyed its proper proportion of this $1,822,000.00 reduction? Now whether or not one exchange hasn't had a great reduction than some other equally meritorious exchange?

A. Well, it is very likely that some exchanges in total dollars had a greater reduction than others, might be for two reasons. One might be of course because they had more revenue to begin with or more stations causing more revenue and therefore they would get a larger reduction. It might be——

Q. You then base one element on the income of the exchange?

A. I didn't say that. I am giving you two possible reasons why reductions may be larger in one exchange as compared with another. One is on account of the size of the exchange and the other is on account of the rates that were being collected in the exchange.

Q. Well, can you say whether or not this reduction of $1,822,000.00 is fairly apportioned between the several exchanges served by the Bell Telephone Company in the statewide case?

A. Well, I think I will have to probably repeat, but I understood Mr. Allen to say it was done to the best ability of the company to obtain a reduction in the various exchanges of $1,822,000.00 in the year 1925.

Q. Well now, to obtain a reduction in the various exchanges, were those reductions apportioned fairly between [fol. 6153] the various exchanges?

A. I couldn't answer that.

Q. You don't know whether one exchange had a larger reduction than the other?

A. Well, you can tell that by looking at the column C that some exchanges gave a great deal more than others.

Q. Why was that?

A. I explained that in two ways before, I mentioned due to the fact the exchange was larger or it might be due to

the existing rates at the time the rates are being considered to be reduced.

Q. Now take, for example, some gentleman has spoken about the difference between Ravenna and Kent. These towns are substantially the same size and it is stated to us that the result of the new rates was not fair to Ravenna as against Kent. What difference would you make in the treatment of Ravenna and Kent?

A. I don't known what the conditions in 1925 may have been in Kent and Ravenna. I don't know, we have got a history here of 1920 and 1930 as to population. That doesn't necessarily mean that it is history as to telephone development in Kent and Ravenna and when it is all said and done it is your telephone development that really cont-ols, as I understand it.

Q. Then you wouldn't agree then, if two cities have the same population located in practically the same part of the state and might have a different rate, that it was unfair to one as against the other?

A. Well, it all depends on what the conditions were that caused the difference.

Commissioner Geiger: All right. Go ahead, Mr. Herbert.

[fol. 6154] Cross-examination.

By Mr. Herbert:

Q. Mr. Brett, will you give us the mechanics by which you arrived at the revenue shown under Column B on page 23 of that April report?

A. I think I can best explain the mechanics there by referring to your one party residential service. As I understand it, the rate that is now in effect permits of 100 calls for a rate of $5.00 per month. This hypothetical rate here is 90 calls for $4.25. Let's just treat first with that. We know from studies prepared at various times the percentage of the residence subscribers who- usage is less than 90. Therefore, for that number of subscribers in this rate here, if applied, it would be a direct reduction of 75 cents a month, and that the amount applied to the number of subscribers in that class would give you a certain number of dollars decrease. Carry it forward and take the average of the subscribers that use between 90 and 100 and carry your calculation forward as to the difference between the reduction of 75 cents in the base rate and the charge for the aver-

age additional calls between 90 and 100 they might have and add that to the $4.25 hypothetical base rate and then compare that result with your five dollars, the difference applied to that number of subscribers would give you the increase in that class. Now you would carry that step forward.

Q. How many classes did you actually work out in making this calculation?

A. I couldn't answer you that.

Q. Did you group them from 90 to 95, 95 to a hundred calls?

A. I couldn't tell you just what the details are on it, I didn't have them and I didn't see them, but I know that that is what must have been done in order to calculate and get [fol. 6155] the amount of this column "C".

Q. You have the same information as to business subscribers showing the percentage of business subscribers that use not to exceed 80 calls a month?

A. Yes, we had to have them in order to make the calculations and to get the effect.

Q. Well then actually your column "C" was calculated before your Column "B".

A. Yes or no. It would be done either way.

Q. Well I mean as a matter of mechanics——

A. To make it clear, we will assume it was. I don't know that it was, but we will assume it was, and we would say offhand that it probably was, not making any difference.

Q. And that was done on 1925 studies of the classes of users by the volume of calls?

A. I assume it was or it was done on studies that would apply to '25 usage, it must have that too.

Q. Who would know?

A. Well, I could find out, that is, not immediately, but I would be very glad to find out and let you know. I couldn't tell you where the data is available right now.

Q. Were you trying to approximate a scale of rates and rate adjustments for hypothetical purposes, as you say, to approximate about a half million dollar change in revenue?

A. You mean in Cleveland?

Q. Yes.

A. No, I wouldn't believe so. It just so happens that in the total approximation to get these rates and to have the rates equal a reduction of $1,822,000.00, it just so happens

that Cleveland's amount of decrease on that basis would be this amount, in other words, the $4.25 for $5.00.

Q. Do you know, would it be possible to get us the information as to the percentages of single line residence users, for example, who make 90 calls a month, a hundred calls a month?

[fol. 6156] A. I think we could.

Q. 110 calls a month, do you have them bracketed to that particular extent?

A. I couldn't answer that, but I think we could furnish you data that would meet your request.

Mr. Thompson: As of 1925, Mr. Herbert? I assume that is what you want, because that is all that was used.

Mr. Herbert: Well, Mr. Brett is not certain that the actual 1925 data was used in the preparation of this, he said he didn't know.

Mr. Thompson: But certainly nothing after that you are not requesting, you are requesting whatever was used here?

Mr. Herbert: Whatever was used here.

The Witness: In other words, the percentage that we considered or the number that we considered as applicable for the year 1925, that is what I understand your question to be.

Q. Well, I am striving to find some form of analyzing or breaking down the totals of the figures that appear in Column "C".

A. That is what I understood you want, yes, by classifications of service.

Q. You had nothing to do with the construction of these various classifications of hypothetical rates on which your accounting calculations were based?

A. No, had nothing to do with that.

Q. You don't know any reason why they changed from a hundred calls maximum to 90 calls maximum on a single line residence phone?

A. Well, No, I don't know, but I would assume that it was in order that they might get some reduction that they would need to make up $1,822,000.00. In other words, you have got to strive for a certain figure.

Mr. Herbert: That is all.

[fol. 6157] Examination by Mr. Thompson:

Q. I want to ask you a question or two. This rate and revenue data about which you have testified was prepared

in response to the two orders of the Commission of January 16th and particularly March 1st, 1934?

A. It was.

Q. And it is calculated to give effect for the year 1925 to a reduction in gross income of the company of $1,822,000.00?

A. That is right.

Q. And in these hypothetical rates if the same service had been rendered by the company in 1925 that actually was rendered, it would accomplish that reduction?

A. That is right.

Q. Now this hypothetical rate data is not drawn with reference to the recent order of the Commission of July 5, 1934, in which the reduction ordered is reduced by approximately $175,000.00 from $1,822,000.00 to $1,637,000.00?

A. It wasn't.

Q. If these hypothetical rates were applied now particularly to Cleveland, contained on page 23, all other assumptions being equal, they would not have produced any reduction in revenue for the year 1925 of what the Commission now finds the reduction should have been, viz, $1,637,000.00?

A. No.

Q. But would have produced a larger reduction of $1,822,000?

A. That is right, $1,822,000.00; that is right.

Q. In addition to that, in the original order, the order in response to which this information was filed, the company was ordered to refund the entire excess revenue, whether collected under bond or not collected under bond, whereas in the present order the refunded revenue is to relate to the bonded cases only. Now in pursuance of that, do these [fol. 6158] hypothetical rates make reductions in cases in 1925 where rates were not collected under bond?

A. They make reductions in all classes of rates, whether collected under bond or not.

By Mr. Sager:

Q. Mr. Brett, Do I understand, though, that in making these reductions you gave a preference to those who had objections filed, that is, you saw that they got the full reductions—I mean in the future to correspond with the re-

ductions ordered in the past and then what was left over you divided up among those who had no protest, is that the way you went at it?

A. No, sir. As I have said before, they gave, in accordance with the Commission's order, first consideration to a proper reduction in increases in rates which were collected under bond.

By Mr. Shapiro:

Q. But took other matters into consideration?

A. Yes, that is right.

Mr. Thompson: That is all, Mr. Brett.

By Commissioner Schaber:

Q. Let me ask you a question. These hypothetical rates do produce $1,822,000.00 less in the year 1925, with the same given service, than what was actually collected by the company that year?

A. How much reduction of revenue?

Commissioner Schaber: $1,822,000.00 less, wouldn't it?

The Witness: That is right. It would have reduced the revenues that the company collected, yes, sir.

Q. So that the amount that the company may be asked to refund won't change those rates one particle, would it?

A. Well——.

Q. Whether you refund $1,822,000.00 or not, these hypothetical rates are based upon the proposition of reducing your income that much?

Mr. Thompson: That is the fact, but of course I think [fol. 6159] that is a legal question. Will Your Honor permit be just a half a moment on that, just a half a minute?

Commissioner Schaber: Well, I was trying to follow you where you brought in the order——

Mr. Thompson: My position is just this, Mr. Commissioner Schaber, I think it is perfectly clear, you originally said now you were going to require us to refund the excess earnings of the company, whether collected under bond or not. The only ground upon which you can conceivably and which you suggested that you could make a rate schedule retroactively effective was that you had to fix it under the Pence Law. Now you have come along and recognized that you can only order a reduction for

the year 1925 of $1,675,000.00. Now the hypothetical rates that we filed pursuant to your order contain reductions in non Pence Law cases where even the Commission hasn't contended they could make rates retroactively effective, you have held you can't. So it seems it is clear that these schedules could never be put into effect, even under your own theory.

Commissioner Schaber. We would have a right to reduce a rate, whether it was one that was collected under bond or not, after investigation was instituted.

Mr. Thompson: That is what I say, but you say no. You say that with regard to these Pence Law cases, you say that you are engaged only in the fixation of rates as of July 30th, 1925, and that you can't take present conditions into consideration. We say you can. I say you can reduce them in present considerations in Pence Law cases or in non Pence Law cases or not, providing the facts justify it, but you say no. I think you are getting over on my side.

[fol. 6160] Commissioner Schaber: We may be together before we know it. Well, he hasn't answered the question. Do you think it is improper, are you objecting to that question?

Mr. Thompson: All I am saying, I think it is a legal question. I would admit for the company without any further examination of this witness, that if these hypothetical rates which the company has filed for the year 1925 had applied to the services actually rendered by the company for that year they would have resulted in a reduction of $1,822,000.00. We have no disposition to deny that, Mr. Commissioner.

Commissioner Schaber: Well, that is all we care to ask.

Mr. Thompson: That is absolutely correct.

Commissioner Schaber: We will try to apply the law.

Mr. Thompson: Yes, sir.

Commissioner Schaber: All right.

Mr. Thompson: Now may we call Mr. Woods?

Commissioner Geiger: That goes into the other phase of the case?

Mr. Thompson: Yes, it does. I didn't know whether you had finished or not.

Commissioner Geiger: Yes, you may call Mr. Wood.

[fol. 6161] And also E. W. Wood, called as a witness, being first duly sworn, testified as follows:

Examined by Mr. Thompson:

Q. Will you state your name and residence?

A. E. W. Wood, Marion, Ohio.

Q. You are a certified public accountant, aren't you, Mr. Wood?

A. Yes, sir.

Q. And you have in the past been employed by the Ohio Public Utilities Commission in connection with certain work in this case?

A. Yes, sir.

Q. And have previously testified before the Commission?

A. Yes, sir.

Q. Are you familar with the findings and order of the Commission in this cause of July 5, 1934, and particularly with the tables of figures and schedule A attached to said order?

A. Yes, sir.

Q. Did you do the accounting work in connection with that order?

A. I made the allocations listed on Schedule A.

Q. And this work was done at the Commission's request, was it?

A. Yes, sir.

Q. You say you made the allocations listed on Schedule A. Did you also make the other allocations and apportionments that were necessary in arriving at that order?

A. As between the protesting and non-protesting exchanges?

Q. Yes.

A. Yes, sir.

Q. Perhaps this is a little out of order, but it would seem to me from an examination of this order on the face of it [fol. 6162] that it was necessary to make three apportionments and allocations. First, you had for the period 1925 to '29, a finding by the Commission of $13,289,172.00 of excess earnings?

A. Yes, sir.

Q. Now on some basis, as I understand it, it was necessary first to apportion that amount or allocate it, we will say, as between the protesting and the non-protesting ex-

changes or between the bonded and the non-bonded rates. Now, that is the first apportionment you would have to make?

A. Yes, sir.

Q. Now further, as I read this order, it would be necessary by an allocation, certainly for the years 1925 and '26, to arrive at the amount required to be refunded with respect to the respondent's exchanges considered in bulk and the toll system?

A. Yes, sir.

Q. For two years. So that would be your second apportionment. Then you would have to turn to the figures which are now set out on Schedule A to the order of July 5 and make an apportionment among the several exchanges for each year of the excess earnings attributable to the exchange part of the protested rates?

A. That is right.

Q. So there were three. Now you did the work on all of those.

A. Yes, sir.

Q. Can you tell me whether the figures which you used, the apportionments which you arrived at, are the exact figures which appear in the Commission's order of July 5, 1934?

A. I haven't compared that table after it was typed, but I will say that it was typed from figures which I furnished the Commission and I assume it has been correctly typed.

Q. I assume so too. I am not making any point of any mathematical inaccuracies, Mr. Wood. All I am trying to [fol. 6163] do is this, so that when I ask you about your figures and your apportionments, I am dealing, so far as you know, and subject to your check, with the figures as they appear in the Commission's order of July 5, 1934.

A. That is right.

Q. Now, if I am incorrect in that, you will let me know that, will you, Mr. Wood? Now will you tell me by what method you made the first of the apportionments that we have referred to, and I am talking now of the apportionment as between what you call the protesting exchanges and the non-protesting exchanges of the $13,289,172.00 total excess revenue?

A. The first allocation of this amount was between protesting and non-protesting exchanges and was made on

the basis of total exchange revenues for each year as reported in this data filed by the company on April 17th.

Q. Total exchange service revenues?

A. Yes, sir.

Q. Now does that mean that you found out the total exchange service revenues of the company in its entire operations, and then you found out the total exchange service revenues collected in any exchange in which a bond was in effect for that year, let's say 1925, and ascertain the ratio of the second amount of dollars to the first and proceeded on that basis?

A. That is right. This data filed by the company shows the exchange service revenues for every exchange, whether they protested or whether they did not protest. I summarized all of the exchanges that protested and got a total. I summarized all of the exchanges that did not protest and got another total. The total of those two totals were the exchange service revenue for the company in each year and on the basis of the ratio thus developed, I made my separation of this amount in each year.

Q. All right now, I am not going to go through all of [fol. 6164] those years, but for the year 1925 will you give me from your work papers the total exchange service revenues of the company and the total exchange service revenues in exchanges where no portion of the rate was collected under bond in the year 1925?

A. Total exchange service revenues for 1925 were $24,554,399.00.

Q. All right now, what were the non-protesting exchange service revenues for that year?

A. $2,108,564.00.

Q. Now was there included in that $2,108,564.00 the revenues from Canton for 1925?

A. If Canton is not one of the protesting exchanges, yes.

Q. Well, I will say for your information, Mr. Wood, that there were increased rates put in effect under bond in Canton in 1927. There were no increased rates collected under bond in Canton in either 1925 or 1926. I want to know whether you included Canton revenues in your 1925 calculation as a protesting exchange or as revenues collected under bond?

A. Can I see a copy of the data filed by the company? Canton was included as a protesting exchange.

Q. Although no revenue was collected in Canton under bond in the year 1925?

A. That is right.

Q. What was the amount of that revenue?

A. -711,940.00.

Q. Now how about Columbus for the same year?

A. Columbus would be included in the protesting exchanges.

Q. No rates were collected in the Columbus exchange area under bond in the year 1925, is that correct?

A. That is right.

Q. And you include all the revenue as protesting revenue for that year, all exchange service revenue?

A. I couldn't have included all that because the total Columbus revenue is $2,632,977.00.

Q. And not a dollar of that was collected under bond, but [fol. 6165] you treated it as revenue from protesting exchanges?

A. That is right.

Q. You didn't put it in the non-protesting exchanges for that year?

A. No.

Q. In making your allocation?

A. No.

Q. Now the same thing is true of Coshocton, isn't it?

A. Coshocton was included as a protesting exchange

Q. How much was the revenue in Coshocton?

A. $66,705.00.

Q. That is for the year 1925?

A. Right.

Q. And no rates were collected under bond by the Ohio Bell Telephone Company in Coshocton in the year 1925?

A. That is right

Q. How about London?

A. London was also included as a protesting exchange.

Q. What is the amount of its revenue in 1925?

A. $43,099.00.

Q. And not a dollar of that was collected under bond in the year 1925 by the Ohio Bell Telephone Company?

A. Not according to this data here, no.

Q. Now Sedalia is a small exchange. Will you look at

that for just a moment, and see whether you treated it in the same way?

A. Sedalia was treated as a protesting exchange.

Q. What was the revenue for 1925, exchange service revenue?

A. $3,629.00.

Q. And it is a fact, isn't it, no rates were collected under bond at Sedalia, Ohio, by the respondent in the year 1925?

A. That is right.

Q. Now turn to Springfield, Ohio. How was that treated in making your apportionment and allocation?

A. Springfield was also treated as a protesting exchange.

Q. And as a matter of fact, no revenues were collected under bond in Springfield, Ohio, by the respondent in the year 1925?

[fol. 6166] A. That is right.

Q. What were the total exchange service revenues for that year in Springfield?

A. $453,236.00.

Q. Now how about Washington Court House?

A. The same thing is true of Washington Court House, included as a protesting exchange.

Q. What were the exchange service revenues at Washington Court House in the year 1925?

A. $84,880.00.

Q. As a matter of fact, no revenue was collected by the Ohio Bell Telephone Company at Washington Court House, Ohio, under bond in the year 1925?

A. That is right.

Q. Now, will you accept, subject to check, my additions of these figures you have given me?

A. Yes, sir.

Q. I calculate $3,996,465.00 plus. You have already testified how that that entire sum of money was money collected by the Ohio Bell Telephone Company in exchanges where it had no bonds in effect for the year 1925, and yet in making the allocation of excessive earnings as between protesting exchanges and non-protesting exchanges you have included that revenue as protesting exchange revenue?

A. That is right.

Q. Now that is about 16 per cent of the company's total revenue for the year 1925, a little more than 16 per cent, isn't it?

A. Approximately so, I would say.

Q. And of course if you had treated that revenue, none of which was collected under bond, as non-protesting or non-bonded revenue in making the apportionments, it would make a very substantial difference in the amount of the claimed excessive earnings of the company for the year 1925 allocated to its protesting exchanges?

A. Yes, it would make whatever ratio that works out.

[fol. 6167] Q. It would make a difference of over $275,000.00 to the company, wouldn't it?

A. I accept your calculation, subject to check.

Q. I don't have the exact figure. Would it be asking too much of you to calculate that, not to take the time now, but to calculate that so that when we come back this evening or in the morning you could give me the exact figure?

A. Yes, I will be glad to calculate it.

Q. Now the same thing was true for 1925 in the Canton exchange, wasn't it?

A. That is right.

Q. How much was the exchange service revenue of the company at Canton, Ohio, in 1926?

A. $750,709.00.

Q. And you have treated in your allocation and apportionment the first one that you have made, all of that exchange service revenue as revenue in protesting exchanges?

A. That is right.

Q. As a matter of fact, no rates were collected by the Ohio Bell Telephone Company at Canton, Ohio, in the year 1926 under bond?

A. There is none shown here, no.

Q. And that would make a difference in the apportionment, if you stated that as non-bonded revenue as in fact it was, but of course in a smaller amount than the other. isn't that true, Mr. Wood?

A. That is right.

Q. And that also would result in the refunds ordered by the Commission in its July 5th, 1934, order, being less for 1926 than those stated in the order?

A. Yes, sir.

By Commissioner Geiger:

Q. Well, just a moment, Mr. Wood. You have brought that out quite extensively that there are included in some of those estimates of rates that were not collected under bond during a certain period of time. Just how did that

[fol. 6168] chance to get into your calculation in that way? They were not continuously collected without bond, were they?

A. Those are cases, Your Honor, where the bond was filed at a later date than 1925.

Q. Well, were they cases started long before the bond was filed? Where was the delay, in the filing of the bonds or in the beginning of the actions?

Mr. Thompson: The revenue couldn't be collected, Your Honor, until after the bond was filed. For those years we didn't have increased rates in those exchanges.

Mr. Herbert: The effective dates are in that Schedule A.

By Commisioner Geiger:

Q. Were there cases that you have not taken into consideration where money was collected prior to 1924 under bond?

A. Yes, there are some of these cases that were started prior to 1924 that I did not consider.

Q. Well, would that increase the amount or have you taken that into consideration?

A. I haven't taken it into consideration.

Q. But I take it, suppose the case were begun in 1924 and collections were made under bond, you didn't take it into consideration until 1925?

A. That is right.

Q. When there would be an increase due to cases where they were collected under bond prior to 1925.

Mr. Thompson: Your Honor, how could that be before you decided whether there was any excess income in 1923 or 1924? You haven't heard that case yet.

Q. I am asking him that. Assuming that there was then an increase, there were rate cases started prior to 1925, is that right?

A. Yes, there were cases before that.

Q. In which bonds were given?

A. Yes, sir.

Q. And collections made?

A. That is right.

[fol. 6169] Q. You didn't consider them because the Commission had taken 1925 as the day certain and didn't go back of that?

A. That is right.

By Mr. Thompson:

Q. Of course, you considered for the year 1925, Mr. Wood, all of the cases in which rates were put in effect under bond in 1925, so that your apportionment and allocation for 1925 is complete for that year, isn't it?

A. Yes.

Q. And the same is true of '26?

A. That is right.

Q. Now the net result of what you have done in making your apportionment is this, that you started with the basis of apportioning between, as I call it, the bonded and the non-bonded cases by considering exchange service revenues collected in protesting exchanges in that year; that is right, isn't it, that was the purpose and the method upon which you proceeded?

A. That was the first basis of allocation.

Q. Now what you have done for the year 1925 in making that allocation and apportionment, you have included in the bonded revenue or the protesting exchange revenue nearly four million dollars of revenue that in that year was not collected under bond at all?

A. That is right.

Q. And in the year 1926, $750,000.00 of revenue has been included by you in arriving at this apportionment where the revenue wasn't collected under bond and you have treated it as bonded revenue?

A. Yes.

Q. That is right. Now of course if that recalculation is made the inevitable result is to reduce the amounts ultimately found by you for refunds in this case?

A. Naturally if those revenues were omitted from the protesting values.

Q. Are you prepared to make those recalculations for me [fol. 6170] and show the effect which it will have, the effect of this recalculation which it will have on the monies which the company is now ordered to refund in the protesting exchanges for 1925 and '26?

A. I can make the calculation. I would also like to offer an explanation as to why those revenues were so included.

Q. I think you have the clear right to do that, Mr. Wood, and I would be glad to have it.

A. The original starting point in making this allocation was this data filed by the company on April 17th in the

form of a hypothetical rate structure and the original basis of allocating between protesting and non-protesting exchanges was intended to be based on that rate structure.

Q. That is under the old order?

A. Yes.

Q. Yes, because then it was the order of the Commission to repay all of the excess earning.

A. Whatever the order was, but that was the intention in making this allocation, this first breakdown, was to use this tentative rate structure as a base. And I did use that as a base up to a certain point in my calculations and in so doing took all of the exchanges wherein protests were filed as one thing and all of the exchanges wherein protests were not filed as another and they are all included in this rate structure and reductions are made in the rates in those years, even though there were no bonds on file for these particular exchanges that you have called my attention to.

Q. That was true, Mr. Wood, wasn't it, if you know, because under the order of March 1st, correcting nunc pro tunc the order of January 16th the company was ordered to refund the entire amount of excess earnings?

A. Well, I don't know the legal angle of the thing, I am just explaining the mechanics of how this thing was worked out and the reasons for including those items. As a con- [fol. 6171] clusion, in that computation for the year 1925 the $13,289,172.00 would have been divided as between protesting exchanges and non-protesting exchanges in the amount of $12,187,443.00 to the protesting exchanges, and $1,101,729.00 to the non-protesting exchanges. However when the fact was discovered that these tentative rates had not followed a hundred per cent the intention of the Commission in making reductions where increases had previously been made, we changed the basis to the exchange revenue that I explained first.

Q. Was that done at the direction of the Commission?

A. Not specifically, no, I don't think they directed it. I think I did that on my own account. But the assurance that I had that the exchange method was reasonably correct for all practical purposes was that on my second allocation I was less than a thousand dollars different from my first allocation, and that thousand dollars was in favor of the company rather than against it.

Q. Now don't you see, Mr. Wood, when you started out on the first allocation you were operating under an order of

the Commission requiring a refund of this entire excess earnings of $13,289,172.00 for the years 1925 to '32; now you come to these new orders——

A. Under those conditions no allocation would be necessary because the whole amount would be refunded.

Q. None as between protesting and non-protesting exchanges. Now you come down and you base this on exchange service revenues and I call your attention to the fact that in making those allocations and apportionments for 1925 and '26, you have erroneously included in the exchange service revenues of protesting exchanges nearly four million dollars for the year 1925 and over $750,000.00 for the year 1926 of exchange service revenues in cases where no rates were in effect under bond in those years. Now don't you [fol. 6172] feel that you ought to make the correction,

A. I will make whatever correction is directed to be made by the commission.

Q. I am asking you, do you feel this ought to stand this way?

A. Well, without any more thought, I wouldn't want to say definitely. It would seem to be inconsistent in those two years, but without——

Q. Now let's take Columbus, which is the biggest exchange, there was over two million dollars of exchange service revenue collected in Columbus in 1925. Now those were lower rates, of course, than they would have been if there had been increases put in effect under bond and lower than the Columbus rate in '26. Now after you get the amount allocable to the exchanges, you see for 1925 you don't include any refund for Columbus?

A. No

Q. So that is inconsistent with your theory, isn't it?

A. I wouldn't think so because that allocation was made on the basis of amounts collected under bond.

Q. I understand, you include in determining the relationship between exchange service revenue collected under bond and not collected under bond, the Columbus revenue for the year 1925, although it was not collected under bond, and although the Commission orders no refund with respect to Columbus and couldn't order it; that is true, isn't it?

A. Yes.

Q. Of course the inclusion of this non-bonded revenue in the bonded revenue for '25 and '26, can have no possible

relation to any situation occurring in '23 or '24, can it? You were dealing——

A. Just with each year separately.

Mr. Thompson: Why of course. Did you want to ask a question?

Mr. Herbert: I simply wanted to clarify some of this at this time. I believe if you had permitted Mr. Wood to go all [fol. 6173] through with his allocation for 1925, from the totals that he had over there for total protesting exchange and non-protesting exchange, carried over his allocations to where he relates them to the amount reported by the Commission under bond, that you will find the error of inclusion of those exchanges which you speak of is eliminated by the fact——

Mr. Thompson: It couldn't be.

Mr. Herbert: It is eliminated by the fact that he finds I believe from his figures there, I ascertained these facts just at the end of last week myself so I mean I am only speaking from having had——

Mr. Thompson: Mr. Herbert, I don't want to interrupt you, but I have a very definite plan marked out for my examination. Would it be asking too much if I——

Mr. Herbert: Not at all. I merely thought you could clarify it by carrying him clear through with his allocation for 1925.

Mr. Thompson: I am going to come back to that.

By Mr. Thompson:

Q. Now in making this first apportionment we are talking about, the apportionment of excess earnings, did you have available for your use and did you use the fair value of the respondent's property, its revenues, expenses, net income or rate of return in any of the exchanges or in the toll system or in all of the exchanges grouped together and the toll system?

A. As between protesting and non-protesting exchanges?

Q. Yes, in making that apportionment, or did you base it entirely on exchange service revenue?

A. I based it on exchange service revenue.

Q. Without considering any other factor.

A. Outside of this other study that I just recited to you [fol. 6174] based on this tentative rate data that was submitted, I considered that.

Q. You first considered that, but you didn't use it, though, did you?

A. I used a figure that was so close to it that there was less than a thousandth of one per cent difference. I used it by way of check.

Q. You have told me you used this method. Now, I want you to explain what this other method is that you say you checked your first method by?

A. In Column C of this tentative rate study that was presented by the company it shows the net reductions in revenues for each exchange, whether they protested or whether they did not protest, and I arrived at the totals of those reductions in the protesting exchanges and in the non-protesting exchanges and compared the ratio to the total and allocated the $13,000,000 on those ratios.

Q. Now of course in doing that you also included for the years '25 and '26 in the protesting exchanges the same exchanges that weren't in fact protesting?

A. That is in which the company was going to make reduced rates.

Q. Yes, but they never claimed or represented to you that they were protesting exchanges?

A. No.

Q. All right. So of course what you are saying to me merely is that you have checked this method by another method into which the same error crept, isn't that right?

A. Yes, based on this rate structure.

Q. Yes. Now in determining this first apportionment, did you have any knowledge or did you use in making that apportionment the net income of the company in any of its exchange areas or in all of its exchanges together or in its toll system, the net income?

A. No.

[fol. 6175] Q. The amount available for a return or for dividends?

A. No, I didn't have that.

Q. All right. Now we have talked about one thing. I will go to another before going to this second apportionment. Suppose that in Cleveland, Ohio, there was $12,000,000 of exchange service revenue in the year 1927, total——

A. $12,000,000.00.

Q. Yes, and it is around that figure. Will you tell me

what the increased revenue collected under bond was in that exchange in that year, 1927?

A. $99,160.00.

Q. Out of twelve million?

A. I don't know where you get the twelve million.

Q. Total exchange service revenues?

A. Oh yes, $12,070,000, that is right.

Q. Now in this first apportionment and allocation that you make you treated that entire $12,000,000.00 as revenue in protesting exchanges, although only $99,000.00 were the increases collected under bond?

A. Yes, that $12,000,000.00 was part of the total.

Q. Now with respect to all that $12,000,000.00 except the rates affected by this $99,000.00 there had been no increased rates collected under bonds, the rates were just the same as they had theretofore been?

A. That is right.

Q. So of course by treating as protesting revenue all the rates in an exchange where one single schedule had been increased under a bond you obtained a result that required millions of dollars more of refunds than if you had dealt only with the increased revenues collected under bond?

A. If I dealt only with the increased revenues under bond I would have got no percentage because that is the—I don't quite follow you there.

Q. Certainly, if you had taken on the one side all revenue [fol. 6176] that was collected under bond and you had taken on the other side all revenue that was not collected under bond you would have gotten a ratio, wouldn't you?

A. But in the one instance where the non-protesting exchanges, there were no amounts collected under bond.

Q. Certainly.

A. That is the ratio that I am seeking to determine. There would be no percentage to be worked.

Q. So your whole point here is then as between the protesting and the non-protesting exchanges and not between revenue collected under bond and revenue not collected under bond?

A. No.

Q. I see.

A. If there was no factor for the one I couldn't arrive at a percentage.

Q. You could easily have ascertained the ratio between

revenue collected under bond and revenue not collected under bond?

A. I don't know where I would have used it. I could have ascertained that. I couldn't have used it.

Q. Why not?

A. In what respect?

Q. The Commission has said in its new order that all it can do is to require revenue collected under bond refunded, that is the position stated openly here today. Now you can make a company-wide basis and you have no difficulty in finding for a particular year the total revenue collected under bond?

A. That is right.

Q. And you would have no difficulty in finding the total revenue not collected under bond, and in that latter sum you would find all the revenue in certain exchanges and a portion of the revenue in other exchanges?

A. That is right.

Q. And you could find the relation between the two and could have apportioned the excess earnings on that basis, couldn't you?

A. I believe I have done that, Mr. Thompson. I couldn't [fol. 6177] have done it between protesting and non-protesting exchanges. I think that is my second allocation.

Q. I will get back to that a little later. Now the first apportionment that you make necessarily involves the assumption that every dollar of exchange service revenue collected by the company, whether collected under bond or not so collected, has in it the same amount for the year 1925 of excess earnings?

A. I wouldn't say every dollar. I would say that we had to work these things out on averages. I wouldn't attempt to take every particular dollar and say that each bore the same relation as the other because we necessarily have to work on averages.

Q. Let me put it to you a little differently because I think you and I will see this alike. You didn't know and have told me you didn't know the revenues, expenses, net income, rate of return or value of the company's property in any exchange or in all exchanges put together or in its toll system. Now you start to apportion excess earnings on the basis of exchange service revenue solely, so many dollars collected. Now in order to make an apportionment on that

basis, your method necessarily assumes an equal number of cents of excess earnings for 1925, and for each subsequent year included in every dollar of exchange service revenues, and I am going to put one more question to you and then you can answer them separately and if it doesn't make that assumption your whole allocation falls, doesn't it?

A. Is that your second question?

Q. Yes. Now answer them separately.

A. I don't think that the—I will answer the second one first. I don't think it would fall if every dollar didn't have the same number of fractional cents of excess earnings as every other dollar because I am dealing with a group of exchanges, about 42 of them, in which protests were filled [fol. 6178] and in another group a great many more exchanges, smaller, in which protests were not filed. And in using the revenue basis it may be interpreted as being an index as to the earning capacity or the productivity of the rate based on investment and revenues and expenses and all those factors you spoke of, but it doesn't necessarily anticipate that each exchange bears the same number of cents per dollar as each other exchange.

Q. All right, now, turn to the year 1927, your work sheets for the year 1927, and tell me the amount of the excess earnings that were apportioned to the bonded exchanges and the amount of excess earnings that were apportioned to the non-bonded exchanges?

A. 1927——

Q. Give me first the revenue in the bonded and the non-bonded exchanges, exchange service revenue.

A. Exchange service revenues were $26,273,242.00 in protesting exchanges and $2,344,515 in non-protesting exchanges.

Q. All right, now, we will stop right there for a minute. Now if you didn't go on the assumption that I have indicated, if it isn't necessarily involved in your method, then you tell me how much the excess earnings of the company were that were attributable to the exchange service revenues that you have indicated in the bonded cases and how much to the non-bonded?

A. I think I follow you, I think I get the point of your question. I haven't heretofore seen just what you were getting at. That relation would be the same as between

the group of protesting exchanges and the group of non-protesting exchanges.

Q. Every dollar of revenue, whether it was collected under bond or not?

A. Yes. But whether or not it would apply with each exchange with relation to the other, I don't think it would [fol. 6179] be necessary to hold because this is an average condition in the group.

Q. No, but you have no other yardstick to go by. You have based it on exchange service revenue, we should clearly understand each other, you based it on exchange service revenue. Now you don't know, you start with the basis you don't know whether the earnings were excessive in one exchange or were excessive in another. Now if you are going to make an apportionment on the basis of exchange service revenue, your method conclusively and necessarily involves that assumption carried into every dollar of this revenue, doesn't it; and if it doesn't you have got to abandon your method?

A. Every average dollar, yes.

Q. All right, now, we will go ahead. Now I want to know how you arrived at these figures on the second apportionment, the toll for the year 1925 and '26, explain to me just how you got at those two figures and why it was that you got at no allowance for toll for 1927 to '32 inclusive?

A. Well, in the first place, the refundable amounts were considered as being applicable first to exchange service and second to toll service and to be limited in amount to the excess collections under increased rates as reported by the company.

Q. Now may I interrupt you there? Now you knew at the start when you were making that apportionment that the excess earnings of $1,822,000.00 as fixed by the Commission for 1925, and the excess earnings fixed by the Commission for every other year arose out of the entire intrastate operations of the property, both exchange and toll, didn't you? Well, how does it come then in starting these apportionments that you assumed that the excess earnings should be first allocated to the exchanges?

A. You interrupted me just in the middle of my answer. [fol. 6180] Q. All right, go ahead.

A. I haven't quite finished the answer to your first question. And to be limited in amount to the excess collections under increased rates and reported by the company or the

excessive return as found by the Commission, whichever was lower in each of the years under review.

Q. All right now, tell me how you could logically or correctly under the record in this case start on an assumption that if there were enough excess rates collected under bond in the exchange system that you would allocate all of the refund to the exchange system first and then we will say take the slop-over for toll.

A. That was a stipulation given me by the Commission.

Q. You don't support that basis as an accountant, on any accounting theory you wouldn't stand back of that for a minute, would you?

A. I think I would, on the theory that in respect to totals, because it wouldn't change the total amount refundable whether it was refunded to an exchange customer or a toll customer.

Q. Only on that basis that you defend it?

A. It is just as between an allocation of who should get the money.

Q. Now the company's obligation, as you know, is to refund, if its earnings are found to be in excess, under a particular bond that is given. Now you start here to make a refund in our toll system without any knowledge of the value of the property, our earnings, our net income and our rate of return, and what you do—now see if this isn't correct—after having made the apportionment of excess earnings on the basis of exchange service revenue as between the bonded and the non-bonded cases, you find out that the total money collected under bond in the year 1925 is $1,137,195 plus $510,142, that is right, isn't it? That means $1,647,337.00. So you say, "Now, first, I will put [fol. 6181] all to exchange that was collected under bond in exchange," is that right?

A. That is right.

Q. Then you had 528,000 left over for the toll system and only $510,000.00 had been collected under bonds in the toll system, so it was just a purely arbitrary allocation to the toll; that is right, isn't it?

A. Well, it couldn't have been any more because there was no more under bond, couldn't have been any more under the exchange.

Q. Now for the year 1925, that amounted to a hundred per cent of the total collections under bond in both exchange and toll?

A. That is right.

Q. You come down to the next year 1925 and you find that the amount left over as you have allocated to the exchanges, the total amount collected under bond was 42 per cent of the revenue collected in the toll system under bond?

A. That is right.

Q. And for the next year you find it is nothing?

A. That is right.

Q. Was there any change in the toll rates in the meantime?

A. I don't know.

Q. And you didn't know what the change in the value of the property was or the net income. So what you have got in the toll system for these three years may be thus illustrated, a requirement of a refund of a hundred per cent of all revenue collected under bond in 1925, 42 per cent of the revenue collected under bond in the toll system in 1926 and nothing for '27 or any subsequent year?

A. In the toll system?

Q. Yes.

A. That is right.

Q. Do you think there is any method in that?

A. Why, I think there is, yes.

[fol. 6182] Q. I would like to have you explain to me how such a result can be obtained by any method accounting or otherwise, that is not just purely an allocation to the toll system of something that is left over from your exchange fund.

A. Based on the assumption that the exchange service should be the first to receive the refund, that if any excess earnings accrued at all it was in exchange service—

Q. Where do you get that assumption?

A. That was the stipulation that I was working on.

Q. The stipulation you mean from the Commission?

A. That is right.

Q. Now you know that the rates were collected under bond in the toll system just the same as in the exchanges?

A. But it doesn't necessarily follow that the margin of profit or the rate of net earnings is the same on a toll as it is on an exchange call.

Q. You didn't investigate that?

A. Yes, I did. I worked it out the other way.

Q. I wish you would bring that data forward. Do you mean to say that these allocations and apportionments made

to the toll system, which started with a hundred per cent of the rates collected under bond in 1925 and 42 per cent in the next year and nothing for the other years, are based on telephone earnings in the toll system?

A. No, but you said I didn't work it out on any other method. I worked it out where I apportioned the toll earnings each and every year.

Q. Did you submit that to the Commission?

A. Yes, I submitted the information contained in that.

Q. I would like to see that data. I would like to see what kind of a refund you worked out on that theory?

[fol. 6183] A. That was based on again using the intrastate exchange revenue as one factor and the intrastate toll revenue as the other factor.

Q. May I see that?

Commissioner Schaber: The amount to be refunded for those respective years would be the same, wouldn't it, Mr. Wood, as far as the company is concerned?

The Witness: It is just a matter of whether it is a toll customer or an exchange customer.

Mr. Thompson: That would all depend upon whether there was a finding of excess earnings after a consideration of the evidence. If you say that you start with a fixed amount of refunds and it is immaterial how it is allocated or what method it is done on, of course——

Commissioner Schaber: I don't say it is immaterial.

The Witness: It is M. and N. at the bottom. I might shorten this thing up by saying that under that method the total refundable amount was $12,159,189.00, consisting of $9,706,183.00 to exchange and $2,453,006.00 to toll as compared with the other allocation.

Q. Did you make the same start here by including in the bonded revenue for '25 and '26 these exchanges where revenue was collected under bond?

A. I included the total intrastate exchange and the total intrastate toll, see. This is a separation between exchange and toll, not between protesting and non-protesting.

Q. Oh, I see. Then this is an allocation that you entirely abandoned after the new order came out because you couldn't use this now because the first step now is to take out the excess earnings relative to your non-protesting exchanges, so this wouldn't be applicable at all, would it?

A. Well, it wasn't applicable because we didn't use it and

we didn't use it because we went on the theory that the [fol. 6184] refunds should first be made to exchange and second to toll. This would afford a toll refund in every year.

Q. Well now, just so that I will be certain about it and then I have no desire to do anything more than understand your method, Mr. Wood; these allocations and apportionments that are contained in the Commission's order of July 5 as between exchange and toll are arrived at in this way, after having apportioned between what you call the protesting and the non-protesting exchanges the amounts to be refunded in total, you then proceeded to apportion to exchange refunds the entire amount collected under bond of the apportionment you had allocated of the excess earnings, and you simply took whatever was left in the two years 1925 and '26 and assigned that to toll, provided the amount so left did not exceed the toll revenue collected under bond?

A. That is right. I gave first consideration to exchange and second to toll, call it a slop-over or a leave-over or anything you want, that is what was done.

Q. And that was all that was done so far as the method was concerned?

A. That was the method.

Q. There was no examination, it was just that, you just found what it was, and put it there?

A. That is right.

Mr. Thompson: Now I am wondering, Your Honor said something about a night session, if we could have a half an hour with Mr. Wood and his work sheets, I haven't so very much more and I think I could very much expedite this examination if, in Mr. Herbert's presence or anyone else, we could talk to Mr. Wood for perhaps half an hour and come back this evening or in the morning?

Commissioner Geiger: Isn't this the case now, that it may be possible that you would want to make a direct attack upon Mr. Wood's figures if Mr. Wood does not admit that [fol. 6185] there are some corrections necessary? If he says they are necessary I think the next step would be to make a corrected sheet. If he still says they are not necessary, why then you should make your attack upon Mr. Wood's method.

Mr. Thompson: We will want a day or two, I want to be perfectly frank with the Commission about this. From an

examination of this order and such work as we were able to do, I thought that a part of the thing that Mr. Wood had told us were true, I wasn't certain, couldn't be certain. Now we have done what work we can, but after I have finished with Mr. Wood, I want a day or a day and a half, if we can have it, in order to prepare some exhibits that we can put in on direct examination in I should say less than a half an hour, and they all go to the question of apportionments. It won't take me long to finish with Mr. Wood. But I could very much expedite it if we could have a short session in the morning, I would appreciate it if we could do it then rather than tonight, because I am tired.

Commissioner Geiger: We probably wouldn't want to keep everybody waiting for a short session in the morning. Haven't you gotten to the point where you probably may need a further hearing in order to point out wherein you think Mr. Wood is incorrect?

Mr. Herbert: I think a morning session would be better myself than tonight.

Mr. Thompson: I will undertake to finish with Mr. Wood, if he could spare us a few minutes tonight and feels that he would care to do that——.

The Witness: I will be glad to.

Commissioner Geiger: Well, now, let's see if we get this thing so everybody's time is not consumed. You gen- [fol. 6186] tlemen from Cleveland want an additional time to file a protest against these rates?

Mr. Shapiro: As to future rates.

Commissioner Geiger: And you other gentlemen who are not from Cleveland, are they all gone?

Mr. Brenner: I don't care to file a protest. I don't see where it is going to affect us any.

Commissioner Geiger: You mean that you are satisfied with both the refund and the proposed new rate?

Mr. Brenner: Yes, so far as I can figure out from the other cities.

Commissioner Geiger: Now, are there any other cities that would agree that both as to the refund and the proposed new rate they have no objection? Do you speak for them to some extent?

Mr. Brenner: No, I just speak for myself, the City of Akron.

Commissioner Geiger: Well, you are satisfied with both

that which is set up by Mr. Wood's sheet for return to you and the proposed new rate?

Mr. Brenner: We are satisfied.

Commissioner Geiger: All right. Then we don't need to fool on that any longer. Now where are some of those other smaller cities' representatives? What about your matter, are you satisfied?

Mr. Sager: No, we are not satisfied, of course, but I don't see that there is anything further I can bring out on the questions of the Commission. The gentlemen said they had no way by which they could explain these very manifest discrepancies. And I was just wondering if I couldn't go back to Ravenna and perhaps the Commission understands the position of the City of Ravenna and could check up [fol. 6187] those schedules or have their employees do it.

Commissioner Geiger: Quite correct.

Mr. Sager: I think you will find these two schedules were filed on the same day and I think you will find also when you examine them that the rates for Kent and Ravenna under the schedule filed in 1925 were almost identical except in one or two cases, as we find now the Ravenna rate was even higher than Kent's then, and I am just wondering if it wouldn't be proper for me to go back and the Commission understands my position.

Commissioner Geiger: I think so. The City of Cleveland is granted 15 days from this date to file a general or specific protest, either as to the refunds or as to the future rates.

And thereupon the further hearing of this cause was adjourned until Friday, August 3rd, 1934, at twelve o'clock noon.

[fol. 6188] Friday Afternoon Session

August 3, 1934.

And thereupon the further hearing of this cause was resumed, pursuant to adjournment, before Hons. Frank W. Geiger and Charles F. Schaber, Public Utilities Commissioners.

Present:

Mr. W. H. Thompson and Mr. Ashley VanDuzer, Indianapolis, Indiana, on behalf of the Ohio Bell Telephone Company.

Mr. Thomas J. Herbert, on behalf of the City of Cleveland, Ohio.

And also E. W. Wood, resuming the stand, continued his testimony as follows:

Examined by Mr. Thompson:

Q. Mr. Wood, I hand you now an instrument identified as Brett Exhibit No. 9, which has not yet been offered, but which will be in connection with Mr. Brett's testimony, and I call your attention to the first sheet of that exhibit, Sheet 1, Brett Exhibit Number 9, which shows for the years 1925 and 1926 certain changes resulting in your calculation even upon your own theory, but excluding from bonded exchange service revenues certain exchanges where no increased rates were collected under bond for 1925 and 1926, and ask you whether you have seen those figures before you went on the [fol. 6189] witness stand this morning?

A. Yes, sir.

Q. At the bottom of that exhibit it appears that if these changes are made in your calculations the refunds for the year 1925 ordered by the Commission should be reduced by the sum of $277,860.00 and for the year 1926 by the sum of $57,554, or in all, a total of $335,414.00. I want to ask you first whether the mathematics of that exhibit is correct, whether the figures are correct?

A. I find them to be correct, yes, sir.

Q. Do you agree that even upon your theory, the theory pursued by the Commission in making these apportionments and allocations, that the order for refund for these two years should be reduced by this amount?

A. In respect to the toll refunds, yes, sir.

Q. Yes, these both relate to toll and not to exchange, Mr. Wood.

A. That is right.

Q. You have told me that in making the first apportionment which we discussed, that is, the apportionment of excess revenue as found by the Commission between the protesting and the non-protesting exchanges, you proceeded upon the assumption, which was necessarily involved in your method, as you say, that each average dollar of exchange service revenue has included in it for each year an equal number of cents of excess earnings and that this was

true whether the revenue was collected on bond or not so collected; that is correct, is it, Mr. Wood?

A. Yes, in respect to the first breakdown.

Q. Yes, that is what I am talking about. Now when you come to the second allocation, that is, in which you are apportioning or allocating between the exchanges and the toll system, the amount of excessive earnings is found by the Commission attributable to the protested rates, and when you come to your apportionment among the exchanges [fol. 6190] listed on Schedule "A" attached to the order of July 5, 1934, you entirely abandoned and rejected the method of apportionment on which you proceeded in making the first apportionment and proceeded upon an entirely different basis; is that correct?

A. Yes, sir.

Q. I wish you would tell me how you made the apportionment to which I have last referred, that is, the apportionment of claimed excess earnings among the several exchanges?

A. That apportionment was made on the basis of the excess collections under bond.

Q. Let's see if I understand this, Mr. Wood, and I think we are together on this. You start with your first apportionment of $1,822,000.00 for the year 1925 and you first want to apportion that between protesting and non-protesting exchanges and as a result of that you get at a certain figure?

A. That is right.

Q. I am not going to take the exact figure, but I am going to take one that will illustrate the thing I have in mind. Let's say you get $1,500,000.00. Then you find out what the revenues were collected under bond in the exchanges of the Ohio Bell Telephone Company for the year 1925, and again departing widely from exact figures, let's say that they were three million dollars. Then you compare the $1,500,000.00 with the three million and find that that is fifty per cent. Then you take each exchange and find the excess revenue collected under bond and apply 50 per cent to that and that determines the amount of the refund?

A. That is right.

Q. Now, that is the method that is pursued. In 1925, when you compared the two you found that the excess revenue attributable by you to the protesting exchanges

exceeded the collections under bond in the aggregrate of the exchanges for 1925?

A. Yes, sir.

[fol. 6191] Q. So you put the remainder over into toll?

A. Yes, sir.

Q. That also was true for 1926?

A. That is right.

Q. And then for all of the remaining years you found that the figure first arrived at was less than the total collections under bond, you ascertained the ratio between the two as you have told me, and then applied that ratio to the collections made under bond?

A. That is correct.

Q. Now it would have been possible for you, Mr. Wood, to have arrived at a relation between excess earnings fixed by the Commission and the exchange service revenues of the company in each year, to have expressed that in the terms of a percentage and to apply that percentage to the exchange service revenue for each exchange for each year, thus arriving at the amount of excess earnings attributable to each exchange for each year?

A. It would have been possible to arrive at that per cent, but it wouldn't necessarily follow that I would have arrived at the excess earnings by the application of that process.

Q. I quite agree. It doesn't follow that by any accounting method you can arrive at the actual excess revenues, does it?

A. No.

Q. Now it is the fact, isn't it, Mr. Wood, that for each of the years 1925 to 1932 the Ohio Bell Telephone Company collected rates in Ohio in excess of those, let me say, which has been increased pursuant to the provisions of the Robinson and Pence Laws but where the collections were not made under bond because they had not been protested?

A. That is right.

Q. And as I understand it, this record does not disclose the amount of the increase so collected in dollars where they were not collected under bond?

A. I haven't been able to find any such record. I don't [fol. 6192] think it is in the record.

Q. I think that is correct, Mr. Wood. So that these apportionments which you made have no relation whatever to any increases in rates collected by the company during this period except those collected under bond?

A. Will you repeat that question again?

Q. Let me rephrase it. Not having the information before you and it not being developed in the record as to the amount of increased rates collected by the company during this period when they were not collected under bond, your apportionment has of course no relation to those increased rates and has not given them any consideration?

A. That is right.

Commissioner Schaber:

Q. Does the record show what amount was collected under bond, the total amount?

A. Yes, sir.

Q. What does that amount to?

A. In the aggregate I think it is something around nineteen or twenty million.

Q. Do you have the exact figures?

A. I think I have here some place. I have the total figures of protested amounts collected under increased rates covered by bonds as reported by the company of $14,887,674.00 exchange, $4,981,394.00 toll, making a total of $19,869,068.00.

By Mr. Herbert:

Q. That is only for the years 1925 to 1932 inclusive, is it not?

A. That is correct.

By Commissioner Schaber:

Q. '33 is not in that?

A. '33 is not in, or any year prior to 1925 is not in.

Q. Do you have it by years there?

A. Yes, sir. Those figures are contained on a sheet that I expect to have identified later as an exhibit.

Commissioner Schaber: All right, then, we will defer that. Excuse me.

[fol. 6193] By Mr. Thompson:

Q. That is quite all right, Mr. Commissioner. Now I think perhaps you have answered this question before, Mr. Wood, but I just want to be certain that we have the understanding. When you figured the revenue in the protesting or the bonded exchanges you included all the revenue in

that exchange for the purpose of making your first apportionment, whether it was collected under bond or not?

A. Yes.

Q. For instance, we will say in Cleveland—and I am taking the year 1927 because you have given me the figures before—the total exchange service revenue of the company as shown by that record was $12,070,390.00, the exchange service revenues collected under bond were $99,160.00. Now for the purpose of arriving at the amount of excess earnings attributable to the bonded exchanges you include the $12,070,390 and not merely the $99,160?

A. That is right.

Q. Now I am going to give you figures that we have taken from the record and I ask you to assume that they are correct and if you find on checking that they are not, will you state so for the record, and then I want to ask you one question in connection with that. During the period 1925 to 1932, the total exchange service revenues collected by the company in the Cleveland Exchange area were $103,677,597.00, the exchange service revenues collected under bond for the same period in the Cleveland Exchange area were $838,000.00. Now what I want to see is what the result of your method is. Now in the calculations for the several years in determining the amount of excess revenue in the protesting exchanges you have that $103,000,000.00 included in respect of Cleveland, haven't you?

A. Yes, sir.

Q. The maximum amount which the company collected under bond in all those years from Cleveland was $838,000.00. I will ask you if it isn't a fact that your method [fol. 6194] results in requiring the company to refund over four and one-half million dollars on account of this revenue not collected under bond in Cleveland that it couldn't have been required to refund at all if no rates had been collected under bond in Cleveland? The question is not to your understanding, I am trying to bring out this fact, Mr. Wood, that the total revenues collected under bond during this period '25 to '32 were $838,000.00, that by your method of apportionment when you include that $103,000,000.00 in the protesting exchange revenue, the company is required to repay four and one-half million dollars in respect of it.

Commissioner Geiger: Not to Cleveland, to all?

Mr. Thompson: All over.

Commissioner Geiger: I don't quite follow. The figures are so complicated. Your position is that, according to this method of calculation, Mr. Wood has taken into consideration collections both made under bond and not under bond and, taking that as a basis for proportionate refunding to those cases which were under bond, that they would pay back to those customers four million dollars in excess of what was collected under bond?

Mr. Thompson: What I am saying is not that, Mr. Commissioner, but what I am saying is this, that by the application of this method, although we only collected $838,000.00 under bond in Cleveland, by the use of Mr. Wood's method by getting the Cleveland revenues into the protesting exchanges, we are required to pay, in exact amounts, $4,629,766.00, and of course my point is that any method that results in that way is inherently wrong.

Commissioner Geiger: Well go ahead, Mr. Wood.

Commissioner Schaber: Well, according to this statement [fol. 6195] as submitted by Mr. Wood there is but $645,000.00 refunded to Cleveland.

Mr. Thompson: Oh, sure.

Commissioner Schaber: That is less than the amount that was collected under bond.

By Mr. Thompson:

Q. Right. But the whole point is that my putting Cleveland's total exchange service revenues into the calculation, if you had excluded them you would have gotten a refund that was four and one-half million less; that is right, isn't it, Mr. Wood?

A. As I understand the question, it simply simmers down to this, that if by any method I had classified revenues under the non-protesting exchanges rather than the protesting exchanges the amount of ultimate refund would have been less.

Q. That is right, isn't it?

A. That is correct.

Q. And it also——

A. Not only in this method, but any other method that might have been used in allocating these refunds, the lesser amounts you can get allocated to the protesting exchanges necessarily the less amount your refund is going to be.

Q. But my question goes beyond that, Mr. Wood, it goes to this specific thing, that the company having collected under bond those $838,000.00 in the Cleveland exchange area

for the year '25 to '32 inclusive, that by the method which you have used, the total revenue collected in Cleveland being assigned to protesting exchange has been made the basis of refund by this company of over one and one-half million dollars that is true, isn't it?

A. It would probably work out that way. I haven't checked your figures.

Mr. Thompson: I have no further question.

By Commissioner Geiger:

Q. Well now, right at that point, Mr. Wood, do you agree with him that there was such an error in your calculation [fol. 6196] or your method, or do you still say that the method you pursued was a correct method?

A. I think the method that I used here and that the Commission has included in its order, subject to the correction that I have had my attention called to on Brett Exhibit Number 9, is as fair and correct in method as can be determined from their record.

There is only one set of figures in the entire record upon which an allocation to all exchanges in the company could be made. To the best of my knowledge, that is the gross revenue figures. There are no plant figures, no expense figures, no station figures, by exchanges, in this record so far as I know. There is a separation of the gross revenues of the company by exchanges and if you want to reach every exchange in the state, that is the only set of figures that you could use as a base in doing so.

There is another set of figures which reaches only the protesting exchanges and that is the amounts collected under bond and aside from those two sets of figures I know of nothing in the record upon which you could base any allocation to exchanges.

Q. Well, assuming that you would have taken as a basis just those collections that were made under protest and under bond, would the result of the pay-back have been different from that which you have disclosed by the method you have followed?

A. If I had used only that basis I could have only reached the protesting exchanges, I could not have reached the exchanges wherein no protests were filed because there are no similar figurs for those exchanges because there were no bonds filed, even though there may have been excess collections.

Q. Is our order contemplating a return of any sum of money to the non-protesting exchanges?

A. No, we are attempting to eliminate those from our [fol. 6197] calculations before we determine the refundable amounts.

Q. Well, do your calculations show a larger amount to be returned than was as a fact collected from protesting municipalities under bond?

A. For the years 1925 and 1926, yes. For the other years, no.

By Mr. Thompson:

Q. Mr. Wood, there is—you will understand in all these questions I am advancing no theories, I am simply asking you about yours. There is another method by which you could have done this, following through your first method, isn't there? Suppose you had done this, you find the relation between excessive earnings as fixed by the Commission for a given year and your total exchange revenues for that year and fix that in a term of a percentage, that is easy?

A. That could be done.

Q. And that is right in line with your theory that each average dollar of the exchange service revenues includes the same number of cents of excess earnings. Now you have in this record for each exchange the amount of the exchange service revenues for each year?

A. That is right.

Q. All right. You go down to "A" Exchange, you apply that percentage to the exchange service revenues collected in that exchange in the year and you get a certain number of dollars, you get a hundred thousand dollars. All right, you compare that with the amount of revenue collected under bond in that exchange and you find that it is $75,000.00, or you found it was 150, all depending on what the fact is. Now if you had pursued that method further, which was the method on which you had started, you would have found, instead of eleven or twelve million dollars worth of refunds, you would have found about seven, is that right? [fol. 6198] A. I would have probably found just what Mr. Brett is going to find when he goes on the stand at a later time.

Q. But it is certain that would have made a very large reduction; that is true, isn't it?

A. Yes, there is no doubt there would be a lesser amount.

Q. And that is one method which could have been used in entire harmony with the method underlying your first basis of apportionment?

A. That would have been in harmony with the theory that you have advanced here. It isn't the theory that was accepted by the Commission.

Q. Now what I understand you to say, Mr. Wood, is this, you have no knowledge and this record contains no information as to the fair value of the company's property or its earnings in any particular exchange area, and, therefore, no way from which you can ascertain other than by the application of some arbitrary accounting method what the excess earnings are supposed to be in each particular exchange?

A. There must be an allocation, yes, sir.

Cross-examination.

By Mr. Herbert:

Q. I would like to ask one or two questions. In the method which you used what was the aim that you were trying to accomplish?

A. We were trying to give back to the patrons of the telephone company their proportion of the excess earnings as found by the Commission in amounts as nearly as possible equal to those that had been paid by them under protest.

Q. Up to the amount of thirteen million?

A. That is correct.

Q. Or the amount found by the Commission to have been excessive?

[fol. 6199] A. That is right.

Q. Could you prepare an allocation of refund, that is, a plan of refunding which would take in the whole amount found by the Commission to have been excessive earnings over the period? In other words, can not the refund plan which appears in the Commission's order be adapted to refund thirteen million dollars out of the nineteen million reported excessive collections under bond as well as the eleven million dollars or twelve which you found under that schedule "A"?

A. It could if the entire thirteen million were considered as arising from the protesting exchanges or from those entitled to refund.

Q. My point is you can modify your plan to run it up to thirteen million just as easily from a mechanical standpoint as to run it down to seven million?

A. Mechanically, yes.

Mr. Herbert: That is all.

By Commissioner Schaber:

Q. Mr. Wood, you stated that the company has reported the amount collected under bond to be $19,869,068.00 covering the period of years from 1925 to 1932, inclusive, that was the figure, wasn't it?

A. Yes.

Q. Now the Commission had found that the excess collections during the same period of years was $13,289,172.00. That is more than six million less than what they collected under bond?

A. Yes, sir.

Q. Now their collections under bond were due to the increases that they set forth in their schedules over prior existing schedules?

A. Yes, sir.

Q. Now was there anything in the evidence which you were able to find that any part of this $13,289,000.00 of excess collections came from non-protesting exchanges?

[fol. 6200] Mr. Thompson: It finds that right on the fact of your — Mr. Commissioner, because you find that statewide, out of all its operations, exchange and toll, there was this——

Commissioner Schaber: Let the question stand.

The Witness: The only thing that I would note from the record was that the $13,000,000.00 finding was a statewide finding, it was not allocated.

By Commissioner Schaber:

Q. Well the Commission didn't find that that came from non-protesting exchanges or from protesting exchanges?

A. No, I don't think they specified where it came from. It was a state-wide finding.

Q. Then whatever method you might use in making any allocation between protesting and non-protesting exchanges

would be somewhat of an arbitrary method that you might adopt, different plans might be adopted.

A. Well, you would probably find as many different plants as you had people working on the thing. We have considered a great many, all the plans that seem to be possible on the basis of the record, and I submitted various findings to the Commission.

Q. There is nothing in the finding or in the record that all of this $13,289,000.00 did not come from protested exchanges?

A. No.

By Commissioner Geiger:

Q. Is there anything in the record that shows it did come from protesting exchanges?

A. No, not that I know of.

Q. Is there any method to find out?

A. Well, we followed a method here and came to a conclusion.

Q. What was the method?

A. The method that I have spoken of here.

Q. Does that in your judgment reflect a proper allocation [fol. 6201] to each exchange of the amount that the Commission may have found to have been in excess payment?

A. Yes, sir.

Q. Now the problem, as I understand it, Mr. Wood, is rather simple. Its solution may be difficult. As I understand it, the company has reported that during the time they collected under bond from protesting exchanges, they collected $19,000,000.00 plus, is that correct?

A. That is right, from '25 to '32.

Q. Over the entire period of years. The Commission has found that they collected thirteen million plus too much, is that correct?

A. That is right.

Q. And your allocation has been to allocate thirteen million of the nineteen million back to the sources from which it came, confining that allocation to those who paid a protested rate under bond?

A. That is correct. However, the nineteen million that the company reports as excessive collections pertains only to those exchanges wherein bonds were filed and does not pertain to any other exchanges where there may have been excessive collections.

Q. Well, does the Commission's thirteen million apply to collections exclusively made from exchanges where there was a protest and was a bond?

A. I don't interpret them to apply it only to those exchanges.

Q. Well now where else does it apply it?

A. I interpret that finding to apply to the state as a whole, which would include all of its exchanges.

Q. Whether they were protested or not protested?

A. Yes, sir.

Q. Well now is there anything in the record by which we may ascertain what portion of this nineteen million that was collected under bond from protesting exchanges was [fol. 6202] as a matter of fact excessive as applied to those who were paying under bond?

A. That is what we have attempted to find in this allocation.

Q. Have we so found it in your judgment?

A. Yes, sir.

Q. Then as I understand your present position is that our allocation that we made is correct, with some possible changes that may be incident to the fact that you considered collections as having been made in 1925 which were not as a matter of fact made until 1926?

A. That is right.

Q. Would those corrections then, if made—or should they in your judgment be made?

A. I think they should be. They affect the toll refund, not the exchange refund.

Q. Toll refund?

A. That is right.

Q. Well if you make those corrections affecting the toll refund, are you then of the opinion that the amount that has now been allocated by your method of computation to the several rate payers in the several exchanges which were collected under bond and under protest is a correct statement of the amount that should be refunded to them of that thirteen million that the Commission found to be excessive?

A. Yes, sir.

By Commissioner Schaber:

Q. Following Judge Geiger's question and keeping that question in mind, what would you say there as to whether

this schedule "A" attached to the order of July 5th would be subject to the change or not?

A. It would not be changed.

By Commissioner Geiger:

Q. Well, Mr. Wood, would it not be changed by the fact that it may have included figures for 1925 collections from exchanges which were not then being collected under bond, would there be any change there?

A. There would be none because the schedule to which he called my attention referred entirely to exchange service [fol. 6203] revenues and the correction that you speak of applied to toll service revenues.

Q. So that if there be any correction due to that fact, it would be to the toll service users and not to the exchange service users?

A. That is correct.

Q. Is that correct?

A. Yes, sir.

By Mr. Herbert:

Q. If you had the figures showing the amounts collected by the company as a result of increased charges where no protest was made, and, therefore, not collected under bond, if you had those figures as well as these amounts collected under bond would you apply any different method?

A. If I had those figures I would have made a distribution of this $13,000,000.00 on the basis of excess collections, whether under bond or whether not under bond, throughout the entire state. I don't know what results that allocation would have revealed, but I would have made the allocation to ascertain what the results would have been. I don't know whether I would have recommended the adoption of that distribution or not, but on the face of it it looks like it would have been a commendable basis to use.

By Mr. Thompson:

Q. Mr. Wood, I don't want to prolong that, just a question or two. The Commission found, I am reading from the finding now, "We therefore further find that the company collected and received on its intrastate business an excess net income for said years as follows"—I am just going to take one of them— "1930, $1,481,689.00"; that is right, isn't it? Now in response to questions from Mr. Commis-

sioner Geiger, you said that you understood that charge to mean that out of the entire intrastate operations of the company, toll and exchange, for the year 1930, there were excess earnings of $1,481,689.00; that is correct, isn't it?

[fol. 6204] A. Yes, sir.

Q. Now for that particular year, 1930—and I have taken that year because it is after your toll refunds, the years after the toll refunds—you have determined the apportionment to be made and, therefore, the refunds which the company is required to make solely on the basis of exchange service revenues; that is right, isn't it?

A. Yes, sir.

Q. The company was doing a large toll business in that year, wasn't it?

A. Yes, sir.

Q. Collecting five or six million dollars from its toll users?

A. I expect so.

Q. Probably its toll revenues were 20 per cent of its total revenues?

A. It may have been.

Q. A large amount of property in the State of Ohio devoted to its toll business?

A. Yes, sir.

Q. Now what you were striving to do was to find some method of apportionment, an accounting method of apportionment that would return to the patrons and subscribers of the Ohio Bell Telephone Company the largest portion of $1,481,689.00 for the year 1930 that was possible; that is right, isn't it?

A. Yes.

Q. Yes. And as you said to Mr. Herbert, in making this apportionment it was to find, not this total sum, but the largest amount of $1,481,689.00 for the year 1931 as a refund that was reasonably possible?

A. Yes, in comparison with the amount that had been paid under bond.

Q. Right. Now, you have no data at all and there is none in this record of any kind or character from which you can arrive at not only the amount of claimed excess earnings in any exchange or toll system, the earnings at all?

A. No.

[fol. 6205] Q. Not net earnings, but no earnings at all?

A. No.

By Mr. Schaber:

Q. Mr. Wood, I understood you to say that you have an exhibit of some kind that you wanted to submit, put into the record as to how you made your computations, is that correct?

A. Yes, sir.

Q. Do you have it before you?

A. Yes, sir, I have an exhibit entitled Wood Exhibit Number 21 which covers an explanation of the method used in allocating the refundable amounts shown in the Commission's order of July 5, 1934. This exhibit consists of four sheets and states concisely——

Commissioner Schaber: Has Mr. Thompson had an opportunity to examine this?

Mr. Thompson: Mr. Wood was kind enough to furnish me a copy of that, Mr. Commissioner Schaber, and we have no objection to its introduction.

Commissioner Schaber: All right. No interrogation?

Mr. Thompson: Nothing at all.

Commissioner Schaber: The reporter might just make it part of the record.

And thereupon the paper writing last above referred to was offered, introduced and admitted in evidence and is herewith submitted, marked Wood Exhibit Number 21.

By Commissioner Geiger:

Q. Now those sheets, as I understand it, which you have just introduced in the record, are your work sheets exhibiting the method by which you have arrived at the conclusion set out in Exhibit A of the order?

A. That is correct. They are copies of work sheets and explanations of work sheets.

[fol. 6206] Q. But it discloses the method you pursued to arrive at the conclusion that is set out in Exhibit A?

A. Exhibit A, and also in respect of the toll refund, which stands subject to correction in respect of the item contained on Mr. Brett's Exhibit A.

Q. What correction is there in the toll? Only that portion of it which is affected by the fact that you include some collections in 1925 which were not made under bond in 1925?

A. Yes, sir, and 1926.

Q. That can be worked out to see what difference it makes in the toll?

A. Yes, sir.

Q. Have you worked it out yet?

A. Yes, sir, I have a——

Mr. Thompson: Mr. Commissioner, I have submitted to Mr. Wood, I think maybe when you were out of the room, a sheet which he has gone over showing the differences which he says is mathematically correct.

By Commissioner Geiger:

Q. Do you submit that, Mr. Wood, now?

A. Mr. Brett has worked out the details. I have a sheet here which I can submit which corrects the summary sheet in my Exhibit Number 21.

Q. Are you satisfied it is correct?

A. It is correct and in agreement with Mr. Brett's correction.

Q. Was it a sheet made by you or by Mr. Brett?

Mr. Herbert: Mathematically correct?

The Witness: Mathematically. I have made this sheet. If you would like to have this submitted, I will put it in.

By Commissioner Geiger:

Q. What is the total correction that you have disclosed by that new sheet and where did it appear?

A. The total correction is $335,414.00 and it appears as a reduction of the amount refundable to toll service.

[fol. 6207] Q. And is your original exhibit A so corrected or have you given a corrected exhibit "A"?

A. This is a correction of my Exhibit Number 21. Exhibit number 21 is in conformity with the Commission's order of July 5, 1934.

Q. Well, what I was wishing to arrive at, Mr. Wood, is as to whether or not your conclusion is that as to rebates for toll service collected under bond your sheet that you now have discloses the correct reduction that should be made in that particular item?

A. Yes, sir.

Q. You do not wish to affect the amounts which you have disclosed in Exhibit A to go back to exchange service users?

A. That is right.

Q. This only affects toll users?
A. Yes, sir.
Q. And it aggregates what?
A. $335,414.00. I offer that as Wood Exhibit Number 22.

And thereupon the paper writing last above offered was introduced and admitted in evidence and is herewith submitted marked Wood Exhibit Number 22.

By Commissioner Geiger:

Q. Well could you, Mr. Wood, in the event that we would wish those things brought together, give an amended sheet to take the place of Exhibit A if we sought——
A. There is no amendment necessary of Schedule A according to these findings.
Q. Schedule A is correct?
A. That is right.
Q. This is amended only as to toll service?
A. That is right.

Commissioner Geiger: All right.

[fol. 6208] And also FREDERICK B. BRETT, recalled, continued his testimony as follows:

Examined by Mr. Thompson:

Mr. Thompson: If the Commission please, I am calling Mr. Brett. The Commission understands that it is our position that no order of refunder can be based upon any allocation or apportionment made by any accounting basis and I am calling Mr. Brett not for the purpose of offering any such basis but merely for the purpose of showing that if the Commission's theory had been pursued to its logical conclusion, what would have been the result.

Q. You may state your name.
A. Frederick B. Brett.
Q. Did you testify in this case on Wednesday, Mr. Brett?
A. I did.
Q. You are chief accountant of the Ohio Bell Telephone Company?
A. I am.
Q. As Chief Accountant, are you familiar with its books and records and do you have general charge and super-

vision of such books and records, and I mean by that the accounting records?

A. I have.

Q. You have heard Mr. Wood's evidence in connection with certain apportionments and allocations made by him and the methods used in the making of the same?

A. I did.

Q. I am referring now, Mr. Brett, altogether to the Commission's order of July 5, 1934, in which the refunds are shown. Have you prepared in nine sheets an instrument identified as Brett Exhibit Number 9?

A. I have.

Q. Does this exhibit show the methods which were used [fol. 6209] by the Commission in arriving at the apportionments and allocations in its order of July 5, 1934, as modified so far as the toll refunds so far as '25 and '26 are concerned, and also to show certain recalculations made by you in connection with the Commission's method of apportionment?

A. It does.

Q. I wish you would state just as briefly as you can, Mr. Brett, what information is contained on sheets 1 and 2 of Brett Exhibit number 9?

A. Sheet 1 includes the years '25 and '26 and sheet 2 includes the years '27 to '32 inclusive. These show the effect of the method used in calculations made by commission in arriving at apportionments of excess earnings found by the Commission for each year to bonded cases heretofore referred to as protested cases or exchanges.

They also show the amount of exchange service revenues from increases in rates collected under bond.

Sheet 2 for the years '27 to '32 shows that the entire amount of excess earnings found by the Commission and considered as allocable to bonded cases was all assigned to exchanges, whereas Sheet 1 covering the years '25 and '26 shows a separation of this apportioned excess as between exchanges and the toll system.

Q. Now at the bottom of sheet 1, Mr. Brett, I see the decreases in the toll refund as figured by the Commission in the sum of $277,860.00 for 1925 and $57,554.00 for the year 1926, making a total of $335,414.00. Those are the same amounts that Mr. Wood has testified to?

A. They are.

Q. And they are the amounts by which the refunds would be reduced even on the Commission's theory merely by recalculating on account of sums included as exchange service revenue in protesting exchanges for 1925 and '26 where no bonds were in effect in certain exchanges for those [fol. 6210] years?

A. That is right.

Q. Now turn to Sheet 3, Mr. Brett. Does Sheet 3 of Brett Exhibit Number 9 show for each of the years 1925, '26 and '27 the per cent the refunds ordered by the Commission, as modified by Mr. Wood's correction are to the message toll revenues for each of such years respectively?

A. It does.

Q. Now see if I understand this exhibit. As a result of the Commission's allocation or apportionment as it now stands or as it will stand if Mr. Wood's correction is accepted, you have intrastate toll message revenue for the year 1925 in excess of five million dollars and you get a refund that equals four and one half per cent of that message toll service?

A. That is right.

Q. In the next year the toll revenues have gone up to *give* million eight hundred thousand dollars plus and you get a refund of slightly in excess of three per cent?

A. That is right.

Q. In the next year your message toll revenues have gone up to six million two hundred thousand and you get no refund?

A. That is right.

Commissioner Schaber: That is, no refund for tolls?

Mr. Thompson: That is right. All my questions, Mr. Commissioner, are directed to toll.

Q. What figures did you use in the preparation of this Sheet 3?

A. I used the intrastate message toll revenue for each year as is shown in the rate and revenue data and estimates as filed with the Commission April 17th, the refunds included in the Commission's order of July 5, 1934, as they related to toll and modified in accord with this reduction of some $300,000.00, and of course the percentages I calculated.

Q. Now what kind of a method, by a pursuit of what sort

[fol. 6211] or kind of a method could this result that appears on page 3 be obtained?

A. It wasn't obtained by any method. It was the result of taking the balance that was left over from the amount of excess earnings as found by the Commission and as apportioned to bonded cases after the entire amount of revenues in exchanges collected under bond had been deducted.

Q. In other words, it is a sum left over?

A. That is right, no method, it is just a result.

Q. In making the apportionment of claimed excessive earnings between rates collected under bonds or collected in protesting exchanges and those not so collected, what method did the commission use?

A. They used a method that provided the apportionment of excess earnings as found by them as between bonded cases and exchanges where no bonds were in effect on the basis of a division of exchange service revenues as between those from exchanges in which some of the rates or all were increased under bond and those from exchanges in which no bonds were in effect.

Q. Did the use of this method necessarily involve any assumption as to the amount of the excess earnings in each dollar of the exchange service revenue for each year, and, if so, what was the assumption?

A. Well, any method of apportionment that is based on a division of exchange service revenues naturally necessitates the assumption that the same number of cents excess included in each dollar of revenue, whether the revenue was collected from rates in an exchange under bond or from rates in the same exchange not under bond or from rates in other exchanges not under bond.

Q. Now how were the claimed excess earnings of the company as fixed by the Commission attributed to exchanges in which any increased rates were collected under bond allo-[fol. 6212] cated by the Commission among the exchanges?

A. Merely on the basis of the total revenues collected under bond in each exchange.

Q. In making this latter apportionment was there an abandonment of the method used and the assumption necessarily involved in making the first apportionment?

A. There was.

Q. I wish you would take sheets 4, 5, 6 and 7 of your exhibit and explain just what you have done there?

A. Sheets 4, 5, 6 and 7 show the same character of data excepting that Sheet 4 includes the two years '25 and '6, Sheet 5 and the years '27 and '8, Sheet 6 the years '29 and '30, and Sheet 7 the years 1931 and 1932.

Q. All of these sheets show the exchanges in which any increases in rates were collected under bond during the period 1925 to 1932, inclusive. I will explain for the year 1925, and this explanation will follow for the other years, the four columns listed under that year.

In the first column is shown the exchange service revenues for each of the exchanges in which any rates were increased under bond in that year.

The second column shows the apportionment of excess earnings found by the Commission and apportioned to bonded cases to the exchanges on the basis of the relationship of the excess earnings mentioned to the total exchange service revenues.

Q. May I interrupt just a minute, Mr. Brett? That means now that you found that there were X dollars of excess earnings attributed by the Commission in 1925 to protesting exchanges?

A. That is right.

Q. And there was X dollars of exchange service revenue in all of those exchanges?

A. Those same exchanges, that is right.

[fol. 6213] Q. Now the first column is 6.16 per cent plus of the latter?

A. That is right.

Q. All right, go ahead, sir.

A. The third column shows the amount of revenue collected under bond during the year for each exchange, and the fourth column is a calculation based on the second column, apportionment of excess earnings, and third column amount of revenue collected under bond, being the figure in either column that is the lower, and represents the maximum refund that could be made in each of these exchanges on the Commission's theory followed through to conclusion.

Q. Now do you have a summary sheet, Mr. Brett, that gives all of this information together for the various years in tabular form, not by exchanges, but by totality of exchanges?

A. Yes, that is shown in Sheet 8.

Q. Will you explain that sheet, please?

A. Sheet 8 is prepared to show for each of the years 1925

to 1932, inclusive, and the total for all these years, first, the amount included in the Commission's order of July 5, 1934, as representative of the amount of refund that should be made to exchanges, the second column showing the maximum refund on commission's theory; the figures there are taken from the fourth column under each year as shown in Sheet 4, 5, 6 and 7.

The next column shows the resulting decrease for each year and the totals for all the years as between the amount included for refund in the July 5, '34, order and the maximum refund on the Commission's theory followed through to conclusion.

The last item is merely for the entire period the percentage decrease under the amounts shown in the Commission's order.

Now the first column shows $11,425,137.00 charged for [fol. 6214] refund in exchanges. The maximum refund on commission's theory carried through to conclusion is $6,762,773.00, and of course the resulting decrease for the period is $4,640,364.00, which is 40.62 per cent less than the amount ordered in the July 5 order.

Q. I want to ask your specifically, Mr. Brett, whether Sheet number 8 of Brett Exhibit number 9 carries through during the entire apportionment from start to finish the assumption which Mr. Wood started with that every dollar of exchange service revenue had included in it for each year an equal number of cents of the claimed excessive earnings of the Ohio Bell Telephone Company?

A. It did, it followed through the same conclusions, and also with respect to taking the left over amount for toll.

Q. So that if the theory upon which the Commission started is carried through to its logical conclusion, the refunds on that theory could be no more than $6,782,773.00 in or for the exchanges?

A. That is right.

Q. This sheet does not show the toll refund because that would be whatever it might be in addition to this?

A. That is correct.

Q. And I say the toll refund, that could only arise in the years 1925 and '26?

A. On the basis of the way it was arrived at.

Q. That is what I mean.

A. That is right.

By Commissioner Geiger:

Q. Now just one moment there, you have on your sheet 8 a disclosure of the fact that the decrease should be $4,640,000.00. Now those are refunds for exchanges?

A. That is the decrease from the amount of refunds for exchanges included in the Commission's order of July 5, 1934.

Q. But does it follow from that that that should be the de- [fol. 6215] crease of the total amount to be refunded, taking into consideration both exchanges and toll lines?

A. No, the amount would be the same because you would merely add the amount ordered refunded in toll as modified by Mr. Wood to both columns, both the amount of refund ordered and the maximum refund columns.

Q. Plus the same amount for each year?

A. That is right, the same amount for each column, and therefore it won't affect the amount of decrease, it has no effect on the amount of decrease.

Q. You mean then that the $4,640,000.00 should be a decrease as of the thirteen million which the Commission ordered to be refunded?

A. Well, the Commission ordered refunded twelve million odd and that has been reduced to something under twelve million and then this would further decrease those calculations by 4,640,000.

Q. It isn't simply a re-aportionment of the sum the Commission ordered to be apportioned, a new apportionment between exchange and toll service?

A. Well, it naturally takes into account calculations that would properly spread the amount of excess earnings among exchanges in accordance with the original method pursued by the Commission and by Mr. Wood.

Q. Let me ask a question a little more clearly, you have stated on Sheet number 8 that there should, in your judgment, be refunded to the exchanges, $4,640,000.00 less than Mr. Wood thinks should be refunded to exchanges, is that correct?

A. Well, I wouldn't answer that that it was my judgment that anything should be refunded, but I am saying that this amount is—carrying the method first pursued by Mr. Wood to its conclusion would have reduced his calculations $4,640,000.00.

Q. Would the $4,640,000.00 have gone to the toll users

[fol. 6216] under the method pursued by Mr. Wood or would that have been a net reduction of the return by the company to all classes of users, both exchange and toll?

A. Well, it would be the latter.

Q. It would be the latter. No portion of this under Mr. Wood's theory and your application of it would be given back to toll users?

A. No, because this method considers the entire amount of the thirteen million excess.

Commissioner Geiger: All right.

By Mr. Thompson:

Q. Now, Mr. Brett, will you turn to Sheet Number 9, instead of my asking you any questions about it, will you explain how you set that up and what it shows?

A. I have taken the Cleveland Exchange accounting area and I have shown the years 1925 to 1932 and the total for that period of the exchange service revenues from Cleveland.

In the next column I show the exchange service revenues collected under bond for each of the years and for the period.

Q. Are those correct and accurate figures?

A. Yes, they are. These same figures appear in the rate and revenue data filed with the Commission in April.

Now the next column shown the amount ordered refunded in Cleveland of $645,132.

The next figure, $5,467,766.00, is the amount of excess earnings allocable to Cleveland on Commission's theory carried through to conclusion on basis of original method, and also it is the sum of the figures shown by years in sheets 4, 5, 6 and 7.

The next figure merely shows the amount of revenues collected under bond in Cleveland as related to this excess earnings allocable to Cleveland.

And the last figure is the excess earnings resulting in [fol. 6217] refunds ordered in other exchanges of $4,629,766.00 due to the fact that the Commission did not follow their first method through to conclusion. That figure there is just for Cleveland. And taking into account other exchanges where a similar condition exists, you arrive at the decrease shown in Sheet 8 of $4,640,364.00.

By Commissioner Geiger:

Q. Do I understand that your Sheet number 9 discloses the fact that the amount ordered refunded in Cleveland was $645,132.00 and the amount which would be ordered was 838?

Mr. Thompson: That is right.

By Commissioner Geiger:

Q. Then is your conclusion that the Commission's order is almost $200,000.00 less for Cleveland than it should have been?

A. Well, the point is that if the Commission's original method had been carried through to conclusion, that would have been the result.

Q. Well, all right. But the other method that you say results in a reduction of $4,640,000.00, if the Commission's theory were to be carried through to conclusion, if you carry the same theory through to conclusion you increase the return to Cleveland from $645,132.00 to $838,000.00?

A. That is right, so far as Cleveland is concerned.

Mr. Thompson: Cleveland would get nearly $200,000.00 more in refund if the Commission's theory adopted in making this original apportionment were carried through, but the amount of refunds to be ordered made against the Ohio Bell would be reduced by about $5,000,000.00 in the aggregate.

Commissioner Geiger: All right.

By Commissioner Schabert:

Q. Now Mr. Brett, take Sheet number 8 of your Exhibit Number 9 in your second column, you have a total of $6,782,-[fol. 6218] 773.00 that, according to this present computation, you would attribute as being the amount to be refunded to the protesting exchanges where bonds were given?

A. Under the method, with those figures carried through to conclusion, that is right.

Q. The next column of $4,640,364.00 would represent excess collections from exchanges where no protests were filed and no bond given?

A. It would be that and also an allocation of excess earnings to rates in a protesting exchange that weren't under bond or which rates weren't under protest.

Q. Now there isn't any fact in the record that you are

familiar with which would support these figures, is there, as an accurate and proper distribution?

A. Well, there are figures in the record from which the calculations were made.

Q. Well, independent of Mr. Wood's calculations?

A. Independent of Mr. Wood's calculations the figures are in the record on which these are based. I merely have taken a method pursued by Mr. Wood and carried it through to a conclusion and arrived at the result.

Q. All right, let me ask you in another way, is there anything in the record that you are familiar with upon which you could say as a matter of fact that $6,782,773.00 is the total excess collections attributable to exchanges in which protests and bonds were filed?

A. Nothing in the record that I know of that would show it.

Q. And that would also be true as to the other figure in the non-bonded exchanges?

A. That is right.

Mr. Thompson: That is exactly our point, we take your theory, on which there is nothing in the record to sustain [fol. 6219] it, and just figure it through to the logical conclusion.

Commissioner Schaber: I get your idea.

By Commissioner Schaber:

Q. Now, Mr. Brett, assuming that the $13,289,172.00 which the commission found to have been the total of excess earnings collected under the period of years under consideration were collected entirely in exchanges where protests had been filed and bonds given, would you be able from the data that is furnished by the company under April the 17th of this year to apportion that to the protesting exchanges?

A. You mean first we have got to assume that the entire amount——

Q. Yes, that is right, my question is based on that assumption that the entire amount was collected from protesting exchanges.

A. With that assumption, why of course you could do it.

Q. You could from the data that was furnished April the 17th, could you?

A. Yes.

Q. Well then I will ask you to submit to the Commission what would be a proper allocation of that amount to those exchanges.

A. I didn't say it would be a proper allocation.

Q. Mathematically proper?

A. I just said that I could distribute it.

Q. Well, I mean a mathematically proper allocation.

(No reply.)

By Mr. Thompson:

Q. May I ask this, you would have to assume, wouldn't you, even if you start with an assumption entirely contrary to the Commission's order that $13,289,172.00 has arisen from the protesting exchanges, then if you were going to make a distribution you would have to start with the assumption, not sustained by the record, that the excess in each exchange was proportionate to something, wouldn't you?

A. That is right.

Q. And you have no such basis in the record to do it, [fol. 6220] have you?

A. No not that, but that wasn't the assumption that the Commission drew, was it?

Q. Well it necessarily involves first, that all of these excess earnings were attributable to the protection exchanges and in the amounts fixed by the Commission. Now if you are going to make a distribution on the basis of revenue or any other basis, you would have to start with the assumption that the increases or the excess earnings were the same in every exchange and there is nothing to sustain that, is there?

A. No, that is what I say. It wouldn't be proper. You could make an arbitrary distribution there, you could make a calculation, but there is nothing to it, it would be purely arbitrary, it wouldn't be proper, as I said before.

By Commissioner Schaber:

Q. Getting back to the assumption that I predicated in my question, you could do it?

A. Yes, I could submit several things similar to this, I could submit this right back.

Commissioner Schaber: I will ask you to submit it.

Mr. Thompson: So far as the company is concerned, the

witness may do whatever he pleases individually, the company declines to submit any further data unless there is a specific order of the Commission in writing requiring us to do it.

Commissioner Geiger: Well, Mr. Thompson, if the company takes the position that they are not going to submit anything in writing that will enlighten the Commission to determine what is the proper order to be made here, if you are just going to say you won't do it——

Mr. Thompson: No, we won't say that.

Commissioner Geiger: Then the Commission would be [fol. 6221] quite proper to say, "All right, we will decide it on what we have before us."

Mr. Thompson: We don't say that.

Commissioner Geiger: What do you say?

Mr. Thompson: I say just this; if you are asking the witness, who is now a witness before the Commission, to bring in any calculation, he will make any calculation that you ask that he can make telling you what it is worth. If the company is to be ordered in a matter of this kind to make any calculations which it believes are not proper, we insist that we will have an order rendered against us. We have complied with everything the Commission has ordered us to do.

Commissioner Geiger: In other words, you wish us to treat the witness as a witness divorced from the fact that he is the accountant of the company?

Mr. Thompson: No, not at all. I say that if you ask him to bring any calculations, the witness will bring them in, but the company is not to be put in the position of furnishing calculations upon which you may make what we believe to be a wholly erroneous order unless you tell us in writing that you want us to make a calculation, and we have always complied with every order the Commission has made.

Commissioner Schaber: Well, my question was directed to the witness as a witness.

By Commissioner Geiger:

Q. Now may I ask one question here, you have disclosed on sheet 8 of Exhibit 9 that in your judgment the amount to be ordered to be returned should be decreased by $4,640,564.00.

A. I will have to make my answer the same as before, it isn't my judgment. I am saying that this here reflects——
[fol. 6222] Q. Yes, we have got all that. You don't have to take up space. Following the method pursued by Mr. Wood to its logical conclusion?

A. It would result in $4,640,000.00 less.

Q. We understand you don't endorse it. Now what I want to get at is this, is that largely because these rates were not, in your judgment, collected under bond or under protest, is the decrease in the amount to be returned due solely to the fact that an increased rate was collected but not protested?

A. Well, of course the rates have a bearing on it, but it might be a rate that wasn't protested at all, wasn't increased.

Q. I know. What I wanted to find out is whether or not the major portion of your claim for a decrease is not dependent upon the fact that some exchange didn't protest and a bond was not given?

A. No, it isn't based on any assumptions at all in that respect. It is merely carrying through a method, that is all.

Commissioner Geiger: All right.

Mr. Thompson: If I understand it, what you want the witness to do, Mr. Schaber, I want to be sure that we comply with your request, you want the witness to take the $13,289,172.00 of excess earnings as found by the Commission by years?

Commissioner Schaber: That is correct.

Mr. Thompson: Start with the assumption for the purpose of this question that every dollar of that excess revenue was collected under bond?

Commissioner Schaber: Came from exchanges——

Mr. Thompson: Where revenues were collected under bond?

Commissioner Schaber: Yes.

Mr. Thompson: And then you want that entire sum allocated among the several protesting exchanges on the basis of what, the revenue collected under bond or on the [fol. 6223] basis of exchange service revenues?

Commissioner Schaber: Well, I asked the accountant here, whether he would be able to do that from the data that the company has furnished here as of April the 17th.

Mr. Thompson: Well, of course, inasmuch as the method

involves a number of assumptions that are contrary to the Commission's finding, I would like to have him make the calculation the way you want it to be done, whether it is a mere calculation of the exchange service revenue in the different exchanges or the excess collected under bond.

Commissioner Schaber: Let him make it both ways.

Mr. Thompson: All right. It will be understood that the company is not submitting anything of the kind.

Commissioner Schaber: That statement may go in the record, certainly.

Mr. Thompson: We are submitting nothing. We say that any such calculation is entirely contrary to the entire theory upon which the Commission has proceeded, but if you want us to make a calculation——

Commissioner Schaber: There have been so many theories advanced in this case.

Commissioner Geiger: You have spoken, Mr. Thompson, in criticism of what Mr. Wood has submitted.

Mr. Thompson: Sir?

Commissioner Geiger: You have spoken largely in criticism of what he has done. Now have you got any plans to submit of your own? You don't want to submit a refund?

Mr. Thompson: Yes, I can tell you how it can be done.

[fol. 6224] Commissioner Geiger: You want to say generally that there wasn't any excess earnings and, therefore, no way may be devised?

Mr. Thompson: I would say that in the first place, but that wasn't the answer I was going to make. I would say that this hearing is a complete demonstration of the fact that it can't be done by an accounting method and that you have got to follow what the statute told you to do, find out whether there were excess earnings in any of these exchanges.

Commissioner Geiger: You mean that that is the old question of turning the clock back ten years?

Mr. Thompson: It is the old question of the rights of this company being determined upon the law and not upon convenience.

By Commissioner Geiger:

Q. Now let me ask you if you can do something, I don't know that I can state it clearly, because I am not good at that. But could you furnish to us your judgment as to

the proper distribution of a sum of thirteen million plus which the commission has found to be an excess earning as that would be distributed back to the several exchanges and to the toll lines as each was collected under protest and under bond.

A. I could not.

Q. Why not?

A. Well, I haven't any idea, I haven't any judgment that would tell me where the excess earnings as found by the Commission might be.

Q. Well all right. Let's take it another way so that we may be satisfied. Assuming that the state-wide system of the Bell Telephone Company produced thirteen million dollars too much during the course of years, can you tell us in your judgment how that is to be paid back, assuming that there is a bond covering all of those that have paid in that money, in what proportion, I mean—what proportion of that thir- [fol. 6225] teen million is to be attributed to those exchanges where there was a bond and a protest and what proportion of the thirteen million is to be attributed to those stations where there was an increase of rate, but no bond or no protest?

A. I know of no accounting method that would give you the answer without first knowing where the excess was.

Q. Well you know there is a total excess for the whole system?

A. I don't know what exchange it is in or whether it is in an exchange or the toll system.

Q. But don't you know this, you know there is a total excess or we assume there is a total excess as found by the Commission for the whole system. Assume, which is shown by your record, I think, and it is disclosed here, that there was an excess collected under bond by the company in all the exchanges within the system, now the question would be what proportion of thirteen million should be returned by virtue of a protest and a bond and what proportion could be retained by the company simply because there was no protest or no bond? Can you give us that?

A. I wouldn't know.

Commissioner Geiger: Mr. Wood, could you give that?

Mr. Wood: I have given it.

Commissioner Geiger: All right.

Cross-examination.

By Mr. Herbert.

Q. Mr. Brett, you have been constantly referring to what you term the Commission's theory carried through to conclusion. By that you mean, do you not, the first step in this allocation process?

A. Well, that of course is the theory, that you can use ex- [fol. 6226] change service revenues as to——

Q. Isn't that just a part of the total theory or the whole theory?

A. The whole theory? That is the beginning and the end of the theory as I see it.

Q. Didn't you understand Mr. Wood's explanation that he left that theory for the second step?

A. Yes, sure.

Q. And adopted another theory?

A. That is right, I heard that.

Q. Do you know of any other first step that can be taken with the evidence that was available?

A. No.

Q. And do you criticize the second step of that theory?

A. Well, my point wasn't any point of criticism, a point of showing——

Q. I am asking you the direct question, do you criticise the second step of that theory?

A. I say the second step—that is you mean the apportionment among exchanges?

Q. Yes.

A. Well, I certainly criticise that as being absolutely arbitrary.

Q. Do you have any alternative method to suggest that would be more scientific?

A. The carrying through of the original method to conclusion would give you a more correct answer, using the particular method and theory.

By Commissioner Geiger:

Q. Just what do you mean by that?

A. Well, I mean the original was first, you have taken a total number of dollars as excess, now you are first saying how much of that applies to exchanges in which any increases in rates were collected under bond. Now when you get that apportionment, that apportionment is neces-

sarily larger if you have a lot of revenue included in the apportionment from rates in a protesting exchange which were not under bond. Now to begin with, you get a start-
[fol. 6227] ing figure on the basis of exchange service revenues. Now in fairness to the whole—well, I would say to the method originally assumed, why, you must carry that same method of apportionment of this particular amount assigned to the protesting exchanges to the protesting exchanges, that is, on the basis of the relation of the excess to the exchange service revenues.

Q. That is your conclusion?

A. Yes.

Commissioner Geiger: Have you got that, Mr. Wood, have you done that?

Mr. Wood: I have testified quite completely on this whole method, Your Honor. I am not following him word for word. Is it the intention now to put me on again?

Commissioner Geiger: Not necessarily.

By Mr. Herbert:

Q. Now, Mr. Brett, you have available the figures showing the amounts collected by the company over the period 1925 to 1932, inclusive, of increased revenue not collected under bond?

A. You mean as a separate record? No.

Q. Is that obtainable?

A. It could be calculated. Now what increases do you mean, when?

Q. I am talking about the increases that Mr. Thompson was cross-examining Mr. Wood on.

A. I see, during the same period.

Q. During the same period not collected under bond?

A. I just wanted to make sure that we were together on it.

Q. That was what you had in mind in your answer, wasn't it?

A. Yes, that is what I had in mind.

Q. Well now, starting from the finding of $13,289,172 as net earnings by the company divided up into the different amounts for the different years but totalling that, net earnings in excess of what was required, as the chief ac-
[fol. 6228] countant of the telephone company, can you tell us whether it matters to the telephone company what

method of refund is ordered by the Commission in the light of the evidence that approximately nineteen million has been collected under bond during that same period?

Mr. Thompson: The respondent objects to that question. This witness can't determine. We say it matters to the extent of millions of dollars.

Commissioner Geiger: Let the witness answer.

Mr. Thompson: Is the objection overruled?

Commissioner Geiger: Why it is a perfectly competent question. The witness may answer.

Mr. Thompson: You are asking him to pass upon the legal theory involved how.

Mr. Herbert: I am asking him to pass upon the accounting theory involved.

(Question read.)

Mr. Thompson: Now will the Commission listen to me for just a moment? It is so obvious——

Commissioner Schäber: I support your objection. I don't think this witness should bind the company on a question of that kind.

Commissioner Geiger: Objection sustained.

Mr. Herbert: Exception.

Q. Starting from the finding of $13,000,000.00 excess earnings by the company over the period of years from its statewide operations and with the knowledge that the company has collected in excess of nineteen million under bond from various parts of the state over the same period, do you see any accounting objection to an order requiring a refund of the entire $13,000,000.00 excess of the $19,000,-[fol. 6229] 000.00 so collected.

Mr. Thompson: The same objection. It is just the same question.

Commissioner Geiger: Oh yes. I don't think that is a proper kind of a question.

Mr. Herbert: If Your Honor please, I am not asking him for a construction of law. I am asking him as chief accountant of the Ohio Bell Telephone Company to tell us any accounting objection to an order requiring a refund of $13,000,000.00 distributed among the nineteen million dollars collected under bond from the standpoint of the company. There may be an objection from the City of

Cleveland as to whether we get six hundred thousand or eight hundred thousand, there may be an objection from the City of Columbus as to whether they get two and one-half million or a half a million, but I am asking him as an accountant for the telephone company to tell us the accounting objection to a distribution of thirteen million among the $19,000,000.00, to a redistribution of the thirteen million from the nine million dollars collected.

Mr. Thompson: Of course the question answers itself, if the Commission please. You start with thirteen million dollars that is predicated on earnings in the entire system and then you say you can't be harmed by the allocation. Of course we are harmed by every dollar that ought not to be allocated. The question discloses at the start that all of the $13,00,000.00 is to be refunded when the Commission has found to the contrary. The other objection is that it calls on him to make a legal decision for the company.

Mr. Herbert: Then I gather the Commission doesn't want it answered. Exception.

[fol. 6230] Commissioner Schaber: I take it the latter objection is the best objection.

Commisioner Geiger: It is an interesting matter that might be disclosed by it, but all right.

Mr. Herbert: Now, I ask the Commission that the witness be required to furnish on behalf of the Telephone Company the information that was requested by Commissioner Schaber.

Commissioner Schaber: That has already been requested.

Mr. Thompson: The motion now, if the Commission please, is to require the Company to furnish something on an oral motion. I have said to you that the witness would furnish to Mr. Commissioner Schaber any calculations which he is willing to make, which the company says has no bearing on the issue. Now counsel wants to require the company to furnish this and I am saying to the Commission if the company is to be required to furnish something you may enter such order as you like and we will deal with that when the order is made.

Commissioner Geiger: A great deal of the argument centers around the fact that nowhere in this proceeding has there been a separate valuation of property of the several exchanges but that the commission has found the total valuation for the entire system. Now you are familiar

with the fact that the companies have established rates for several different classifications of their exchanges, about twelve I believe, aren't there, twelve different classifications?

The Witness: I don't know anything about it.

By Commissioner Geiger:

Q. Didn't you make the rates for them?

A. No, sir,

Q. Who did make them?

A. Well, I couldn't say exactly who did make them.

[fol. 6231] Q. You know this to be a fact, that there is a classification of the company's exchanges which is the basis of the rate that is charged for those several exchanges, several services within the exchanges?

A. Well, I don't believe I can answer that because I don't know exactly what you mean by classifications. I would have to answer a question that I have no basis of answering.

Q. We have had that in the record.

A. I don't know.

Mr. Thompson: Mr. Brett is simply the chief accountant of the company, has nothing to do with other matters.

By Commissioner Geiger:

Q. Well, Mr. Brett is the chief accountant. Who makes the rates; do you?

A. No.

Q. Well then what do you know about rate-making?

A. I don't know anything about that.

Q. Well then, what are you testifying to today?

A. Today?

Q. Yes, are you testifying about rate-making or refund?

A. I am just merely putting in an exhibit which shows that the theory adopted by the Commission to apportion the number of dollars of excess that they find among the exchanges of the company, and I have taken that method and carried it through to a conclusion and arrived at certain dollars and shown a comparison.

Q. You do that as an accountant?

A. Yes, as a mere calculation.

Q. Mathematical calculation?

A. Right.

Mr. Herbert: Oh, one thing, I would also like to move the Commission to require the furnishing of the schedules showing for the non-protesting exchanges the excess earnings collected not under bond, the increased earnings.

Mr. Thompson: You understand that those records are [fol. 6232] not available, that in order to make those calculations it will cost the company thousands of dollars. You have not asked for it in any of these hearings. Mr. Wood, your witness, says that he doesn't know whether he would use it if he had it.

Commissioner Schaber: There is nothing in the evidence such as that, Mr. Herbert.

Mr. Thompson: It is an easy thing to make a request——

Mr. Herbert: My request is directed to this, if the method of determining refunds, if the Commission adopts its present order, that is, its contemplated order requiring refunds, I simply want to have an exception in the record to the fact that we didn't have that other material whereby to compare and ascertain whether it would work a more equitable method of refund.

Mr. Thompson: Is that objection made on behalf of the City of Cleveland alone?

Mr. Herbert: Yes, sir.

Mr. Thompson: It already appears from the company's evidence here that if the Commission's method were followed through to its conclusion the City of Cleveland would get every dollar refunded to it that was collected under bond, almost $200,000.00 more than the Commission has allocated to it. Now if we are to be required—and it seems to me it is a reopening of the case, that is all right if the Commission wants to do it——

Commissioner Geiger: We do not and we will not and we are not going to do it.

Mr. Thompson: It will cause an expense of I know a number of thousands of dollars and weeks of time.

Commissioner Geiger: Well, we are not going to do that. Mr. Wood, will you take the stand a moment.

[fol. 6233] And also E. W. Wood, recalled, continued his testimony as follows:

Examined by Commissioner Geiger:

Q. Have you examined this Brett Exhibit Number 9, sheets 1 to 9 inclusive?

A. I have examined Sheet number 1, nothing further.

Q. Have you any observations to make upon it as to whether or not it is correct in theory, as to what he testified to, or is an apprehension or misapprehension of the method that you pursued? Have you any remarks to make on it at all at present?

A. I concur in Sheet 1 of the exhibit. I am not competent to pass on the rest of it without having checked it. I understand in a general way that he has taken the first step of the method that I used and applied it to the entire allocation from this, which I do not agree with. I don't question the accuracy of his figures and I believe I understand his method.

Q. Well, why don't you agree with him if you don't agree with him as to the method that he has taken there? Do you agree with him that you have started out on one method and switched to another method?

A. Yes.

Q. Well now, what do you say in justification of that that could answer the criticism that he makes?

A. My reason for switching is that after having ascertained the amount as accurately as possible refundable to the protesting exchanges, that the correct method of allocating that refund would be in proportion to the amount that the money was paid in by the patrons. That is, therefore, why I used that other basis from that point forward.

Q. I don't get quite, Mr. Wood, and I may be a little [fol. 6234] stupid on it, as to the two methods that you pursued. Will you differentiate and say that up to a certain point you pursued one method and then went to another method?

A. Yes.

Q. Do it briefly and as clearly as you can.

A. The first problem was to make an allocation as between the protesting and non-protesting exchanges of the excess return as found by the Commission, the $13,000,000.00 figure. There was only one method that could be used because there was only one set of figures available from the record. That was exchange revenues. There were no other figures that gave weight to all of the ex-

changes in the state. So I used that method to make an allocation between those two groups of exchanges.

Having made the allocation, the next problem was——

Q. Well now, wait a minute; what was the result of that? The result of that was there was an overpayment of thirteen million plus but that only eleven million of it could be returned, is that correct?

A. That is right.

Q. And that was the result of your comparing the income of all the exchanges with the income from those exchanges that had protested?

A. That is right.

Q. All right. Well, I don't see anything wrong with that. All right, then what, then you got eleven million dollars?

A. Having made that allocation, the next problem was to take the amount found to be refundable and find out who to refund it to, in what exchanges to refund it, and for that basis, I used the amounts that had been collected by the company under bond, considering that they were representative of the excess collections made in the respective exchanges.

Q. Well then, do I correctly understand you to say that [fol. 6235] you took two methods or departed from one method? Wasn't this the fact, that your first problem was to determine how much of this overcollection was collected under bond, and, having determined that problem and found that it was eleven million dollars plus and that the difference between that and $13,000,000.00 was collected but was not collected under bond and therefore could not be returned, that you then came to the point that you must determine how this $11,000,000.00 which was collected under bond and was therefore returnable should be distributed to the several exchanges? That was a different problem entirely, wasn't it?

A. It was a different part of the same problem.

Q. Well of course, but it was a different step in the same problem. Then you pursued this other method?

A. That is right.

Q. Now what do I understand this exhibit to show, that this would result in four million less, that if you had pursued the same method clear through to finality, what would have happened?

A. Yes, as I understand Mr. Brett's testimony, he has

taken the method that I started with and has not stopped where I stopped and pursued the other method for the balance of the portion but he has pursued the same original method all the way through to its final conclusion and arrived at those results.

Q. Can you examine this matter and report to us in detail?

A. I can examine it and report to you, yes.

Commissioner Geiger: All right. Would that be right, Judge Schaber?

Commissioner Schaber: That is all right.

Mr. Thompson: May I make an offer? The respondent offers in evidence Brett Exhibit Number 9, consisting of Sheets 1 to 9, both inclusive.

[fol. 6236] Commissioner Schaber: It may be made part of the record.

And thereupon the paper writing last above offered was introduced and admitted in evidence on behalf of the Ohio Bell Telephone Company and is herewith submitted, marked Brett Exhibit Number 9.

By Commissioner Schaber:

Q. I just wanted to ask you, Mr. Wood, when you made your first step in your method, was there any other data available whereby you could have adopted any other method?

A. None whatever except the tentative hypothetical rates submitted by the company on April 17th and I did test that method and, as testified to the other day, found that they were so close as to be practically no difference.

Q. Just about a thousand dollars difference?

A. That is correct.

Q. And either one of the methods that you might have taken, the only two you say that are available from the data in the record bring about practically the same results?

A. That is right.

Q. With the exception of a thousand dollars difference?

A. Yes, that is correct.

By Mr. Thompson:

Q. Of course the evidence, there is no difficulty at all in taking the same information that you have and pursuing/

your original method through and getting Mr. Brett's figures, is there?

A. No, they will be very easily verified.

Q. What I mean is, that evidence is all available in the record?

A. Oh, yes, all the exchange service revenues.

Q. Exactly. So that you weren't precluded by a lack of evidence in the record from following out your original theory to its conclusion just as Mr. Brett has done, you [fol. 6237] could have done that readily, couldn't you?

A. Yes, that has been done, it has been done by Mr. Brett.

Q. Now you pursued the same theory in connection with the rate and revenue data of the company in reaching the same result, that is, you applied your same theory to it as you applied here, proceeded upon the same method?

A. Yes, I went up to the first step with that data and then pursued with the other step the rest of the way.

Q. And in that way checked within a thousand dollars?

A. Yes, sir.

Mr. Thompson: All right.

Commissioner Schaber: Have you concluded your evidence?

Mr. Thompson: Yes, sir. Do I understand that there is to be another hearing?

Commissioner Geiger: I hope not.

Commissioner Schaber: Well, Mr. Herbert, on behalf of the City of Cleveland, wanted to file some protest.

Mr. Herbert: We would like to file our response that we were asked to file as of Wednesday by next Wednesday.

Commissioner Schaber: That wouldn't require any more evidence to be offered or heard?

Mr. Herbert: No.

Commissioner Schaber: Well, that is reasonable. And, Mr. Brett, how long will it take you to get the information and data that I asked you to furnish?

Mr. Brett: Well, I would have to have all the assumptions that you included in there written out.

Commissioner Schaber: Well, you can get from the stenographer here just the question propounded to you.

[fols. 6238-6239] Mr. Thompson: May we do this, let the stenographer write this out and then we will bring it to you and see whether it agrees with your ideas?

Commissioner Schaber: All right. It will not take him very long after he knows what to do.

Mr. Thompson: Well, I think it is—remember, there are 45 exchanges for nine years.

Commissioner Schaber: Let the record show that the request made of Mr. Brett to furnish certain data is withdrawn and we will ask Mr. Wood to furnish it.

And the foregoing is all of the evidence offered, introduced and admitted on this hearing of this cause.

[fol. 6240] Before Public Utilities Commission of Ohio

Statement of Oral Evidence from "Chicago Case"

* * * * * * *

Allen G. Hoyt, called as a witness on behalf of the plaintiff, having been first duly sworn, testified as follows:

Direct Examination.

By Mr. Blackman:

My name is Allen G. Hoyt. I reside in New York City. I am Vice President of the National City Bank of New York; and also of the City Bank-Farmers Trust Company. I have been Vice President of the City Bank-Farmers Trust Company since 1929, and of the City Bank since 1928. Prior to that I was Vice President of the National City Company, which is a corporation affiliated with the National City Bank.

The National City Company, while I was connected with it, was engaged in the underwriting and distributing of investment securities, stocks and bonds. It dealt in public utility securities. The financing of public utilities which the National City Company undertook for its sole account, or in which it participated with others, aggregated, during the period that I was Vice President, many hundreds of millions of dollars. I was Vice President from about the year 1918 to 1928. During that period, the National City Company participated in a great many underwriting syndicates of securities of public utilities. It engaged in the financing of companies other than public utilities, and in the underwriting of their securities.

I was connected with the National City Company prior to the time I became Vice President for two years, 1916 to 1918, and was in the banking or security business prior to my connection with the National City Company. In 1907 I

became a member of the firm of N. W. Halsey & Company. N. W. Halsey & Company of New York were investment bankers. They were engaged particularly in the financing of [fol. 6241] public utilities. They also handled securities of railroads and industrial corporations. I was connected with this Company from 1907 until 1916. Their principal office was in New York; and they had offices in other cities in the country, including Chicago and San Francisco.

I am and have been a director of a number of public utilities. At the present time, I am a director of the International Telephone & Telegraph Corporation, and the New York Steam Corporation, both public utilities. In the course of my experience, I have had occasion to come into contact with the question of borrowing funds for corporations, both on the side of lender and on the side of borrower.

During the time I was Vice President of the National City Company, it participated in financing a considerable number of telephone issues. It participated in all of the bond syndicates formed to handle the bonds of the American Telephone & Telegraph Company. It participated in the bond issues of a number of affiliated companies of the A. T. & T. System, including the New York Telephone Company, the New England Telephone Company, the Northwestern Telephone Company, the Illinois Bell Telephone Company, the Southwestern Bell Telephone Company, and some others. At the syndicate meetings, I usually represented the National City Company in connection with the negotiation of the issues.

During the years when I was actively engaged in financing public service and other companies, if a public utility or other company operating in any part of the country wished to raise funds through a bond issue of a substantial amount, say, in tens of millions, it customarily went to New York City in order to get that money. I think there were very few issues of the size of ten millions of dollars where the principal underwriting was not undertaken in New York City.

I have continued to follow the matter of corporate security issues since the change in my duties. I am at present one of the officers having charge of the investment of trust funds and review of investments, and my present duties necessitate my continuing to be familiar in a general way with the financing and development of public utilities. New York [fol. 6242] has continued to be the most important market for the financing of the kind referred to. That applies to

stocks as well as bonds. Generally speaking, I think the prices for money in New York are lower than elsewhere.

In the course of my business and in making loans to the American Telephone & Telegraph Company and its various subsidiaries, I have become familiar in a general way with that Company. The American Telephone & Telegraph Company is primarily engaged, either directly or through its subsidiaries, in the telephone business. In the Bell System, as it is commonly called, there are about 16,000,000 telephones. The A. T. & T. Company, at the end of 1930, in the last balance sheet I have seen, showed on a consolidated basis, assets of about five billions of dollars; and its net earnings for the year 1930 were about $270,000,000. Its capitalization, at the end of 1930, on a consoldiated basis, was as follows: it had outstanding stock to the amount of $2,155,000,000. The oustanding bonds of the Company, and of the system, amounted to approximately $1,115,000,000.

In addition to its telephone business, the Company is engaged in various other activities. Through the Western Electric, it has a very important manufacturing business, where telephone equipment is manufactured. The sales of the Western Electric I think last year were over four hundred millions of dollars. The Company is also engaged and has taken a very prominent part in the development of the talking moving picture. Many moving picture houses in the country are equipped with the A. T. & T. system of reproducing sound. The Company also takes a very important part in the development of phonograph records and reproduction. The Company does a large business of a telegraphic nature. By that I mean many of its circhits or lines are leased to the Western Union and to the Postal Telegraph Companies.

In addition to that, it furnishes leased lines for telegraphic business between principal offices. It has the process of transmitting typewritten undertakings by wire. It also is importantly engaged in the radio business. From certain [fol. 6243] studios, over the wires of the A. T. & T., programs are broadcast through many chains of broadcasting stations. The Company has also been in the forefront among the developers and experimenters in television.

These outside activities I think have appealed to the imagination of the stock buyer, perhaps more than the utility departments of the business, and have accounted to a considerable degree for the fact that its stock at times has sold

at very high prices. That condition obtained to a marked degree particularly in 1928 and 1929, and partially in 1930. I think it sold proportionately higher than the prices of other stocks. U. S. Steel is no exception to this because it was making very large earnings during this period. It is impossible to generalize about whether the slump of A. T. & T. stock was just about the same as other first class stocks, because the depreciation has not been uniform. What I was referring to particularly was a comparison with utility stocks.

This outside business, which was non-utility and non-regulated, affected the price of the Company's stock and its ability to get money.

I know the Illinois Bell Telephone Company in a general way. Some years ago, we participated in the syndicate which handled its bonds. During the period from 1923 to 1931, the assets of the Illinois Bell Telephone Company have grown from about $171,000,000 to $322,000,000. Its capitalization has grown from about $117,000,000 or $118,000,000 to $200,000,000, approximately. I understand that about two-thirds of the investment of the Company is in the City of Chicago and that has had a similar growth over that period.

In the course of my business, I have become familiar with the way in which the investing public regarded and regards the various classes of securities in which my Company has dealt during my connection with it. I have become familiar with the risks and uncertainties which such investing public considered and considers attend the various enterprises which have issued such securities. I have become familiar [fol. 6244] with the returns that were and are being made by the various enterprises on the securities in which my Company has dealt. I am familiar with the returns which are being made generally in this part of the country on investments in public utility and other businesses, and, in a general way, with the prices at which the securities of such companies sell and were sold.

I refer to both the wholesale price and the retail price. In connection with the distribution of bonds, the securities are usually sold by the corporation at wholesale to a banker or a group of bankers. That price is below the price at which the bankers reoffer the securities to the investing public, the difference being the margin to the bankers to cover the cost of distribution, profit, and so forth. The cost

of money to the corporation is the wholesale price, except that in connection with the issues, the corporation has further expenses to meet, which somewhat increases the net cost of money above the yield at the wholesale price. I refer to the cost of printing the bonds, trustees' fees, attorneys' fees, expense of listing, and so forth.

After bonds come into circulation, they have a certain market price. That market price does not indicate the price at which a large block of bonds, or a new issue of similar bonds, could be sold by the Company. The stocks sell on the Exchanges at a certain price. That does not indicate to a banker, however, that the Company could make a large new issue of stock and obtain the price at which the few shares traded in per day bring in the market.

The American Telephone & Telegraph Company, in selling its securities, comes in competition with all other borrowers so far as bonds are concerned. It comes in competition with all other seekers of capital by stock issues as far as its stocks are concerned. In the future, if it undertakes to get additional funds, it will have to compete with others. The Illinois Bell, were it to finance, would have to enter into competition with other borrowers or other seekers after capital. The American Telephone & Telegraph Company competes for funds most directly, I think, with other public utility corporations; par- [fol. 6245] ticularly the gas and electric companies. The particular corporations with which the Illinois Bell would come into competition in marketing its bonds or stocks to the public are gas and electric companies.

In the course of my business, I have become familiar with the risks and uncertainties which attend an investment in a telephone business in the eyes of those investing therein.

Some of those are: the Telephone Company is strictly limited, as far as its profits are concerned, by reason of regulation; as far as losses are concerned, however, the Company is unlimited. If it cannot find the business for itself, of course, it must take a loss. On the other hand, if the business develops very successfully and it earns more than a reasonable return, it will be compelled to reduce its rates.

There is a hazard for the Company by reason of the fact that if, at any time, on account of increased operating expenses, or for other causes, the return becomes inadequate, the procedure of obtaining relief is usually long drawn out.

The question of taking the proofs to the Commission usually in the first instance, and the frequent necessity of appeal from the Commission to the courts, may require a number of years before the Company can obtain relief and receive permission to charge adequate rates. Furthermore, during this period of inadequate rates, the Company suffers a certain loss or deficiency in return. That loss is gone forever. It is permanent, because the regualtory bodies or the courts in afterwards readjusting the rates do not make allowances which will permit the Company to make up a loss incurred during the period of inadequate rates. On the other hand, should the earnings of the Company show more than an adequate return, the Commission or public authorities are very likely to move very promptly for a downward revision of rates.

I have not seen a survey, taking into account all the cases, which shows in what percentage of rate cases the companies have been able to get any relief from the State Commissions in the first instance, without going to the courts.

[fol. 6246] But I have come in contact personally with quite a number of important cases. In all of those cases, I think the companies had to appeal to the courts to get an increase.

A telephone company makes an unfavorable comparison with respect to other public utilities, particularly an electric or a gas company utility, in certain respects. I refer to the fact that the principles of mass production are not, in my opinion, applicable to a telephone company. As a matter of fact, as the telephone company's business develops, the investment per station tends to increase, and in view of the fact that the investment tends to increase, the return upon that additional investment is constant. On the other hand, the electric and to some extent gas companies, as their business develops, are enabled to install larger and more efficient generators, and the tendency is for the cost per unit of output for these companies to decline.

Furthermore, I think that the telephone company is at somewhat of a disadvantage by reason of the fact that in the event of declining business, the electric and gas companies may reduce their purchases of fuel, and fuel is an important item in production cost. A telephone company, however, providing only service, is not in a position to show the same

flexibility of operation and reduce production cost to the same extent that the other public utilies are.

There have been the following developments that affect the outlook of the telephone company during recent years: the business has expanded very rapidly; and in that expansion the company has reached a clientele of more moderate means than the average subscriber, I believe, of a few years ago. That means, of course, that the company is in a more vulnerable position than heretofore because, if these subscribers of moderate means have reduced incomes by reason of part time employment or unemployment, or reduced salaries, they are very likely to terminate their telephone contract and have the instrument disconnected. I think the telephone company compares unfavorably with the gas and electric companies in that respect, because the electric companies supply many houses with illumination. A householder or apartment renter must use a certain amount of [fol. 6247] electricity, if he has any illumination at all. The same thing is true, to a degree, of the gas company, because there are, in many instances, no other means available to the customer of the gas company for cooking except by using a certain amount of gas. On the other hand, the telephone subscriber can have his telephone taken out; and telephones are being taken out. It is the experience of telephone companies that they are losing at the present time a great many subscribers.

I think that in the minds of some investors also there is the fear, as far as a telephone investment is concerned, that the telephone company may be adversely affected by the further development of wireless communication.

I think there is one further hazard in connection with the telephone business, and also to some degree other public utilities: the telephone companies and other public utilities have made very large investments during the past four or five years, and during a considerable part of that time, construction costs were high. It may be that construction costs will decline. As a matter of fact, they are showing a declining tendency. It may be that a reappraisal of the reproduction value of public utility property will show, as far as that part of the plant is concerned which was constructed during the past four or five years, that the duplication value is materially below the actual cost; and as duplication value is to be given great weight in determining a rate base, it may be that the rate base, as far as the property is concerned

which was installed during the past four or five years, will be adversely affected. The investor in public utilities speculates on the price of labor, material and other things, just as an investor in any other business.

I think it would be fair to say that my last statements concerning the comparative difficulties of procuring capital by gas and electric companies on the one hand, as distinguished from telephone companies on the other hand, would apply specifically to the Illinois Bell.

The telephone business has shown great stability up to a certain point, the reason being in my opinion that until recently the telephone industry never approached the point [fol. 6248] of saturation. There was always an unfilled demand for telephones up until recently. The gas and electric companies have enjoyed a similar experience. In fact, by reason of discoveries of new uses for electric companies particularly, and to some extent gas companies, they have perhaps enjoyed benefits which the telephone company does not enjoy, as, after all, a telephone plant can only be used for transmitting the spoken word.

In my opinion, a telephone company such as the Illinois Bell Telephone Company must earn, at the present time, a return of more than 8 per cent on the value of the property which it employs for the convenience of the public in Chicago, in order that such return shall equal that generally being made at this time, in this part of the country, on investments in other business undertakings, which are attended by corresponding risks and uncertainties.

The money markets at the present time are very much disturbed. I am inclined to think that no operation running into hundreds of millions of dollars, whether by means of bonds or stocks, could be successfully underwritten at the present time. The demand for long-term investments, even of the highest character, is very much limited. The uncertainties regarding the Government's program, and the knowledge that the Federal Government must enter the market for enormous amounts within the relatively near future, make it further impossible for private corporations and even municipal and state corporations (states which have heretofore enjoyed the highest credit), to obtain funds in large amounts at the present time.

In my opinion a telephone company such as the American Telephone & Telegraph Company, doing a nation-wide business, must earn a return in excess of 8 per cent on the value

of the property which it employs for the convenience of the public, in order that such return shall equal that generally being made at this time, in this country, on investments in other business undertakings, which are attended by corresponding risks and uncertainties.

In answering questions as to what risks and uncertainties were in the mind of the investing public, I was considering [fol. 6248a] the risks inherent in the business, irrespective of the present market conditions. The risks that I referred to are recognized, I think, by bankers and others, who invest in securities of this kind.

The return which a telephone company such as the Illinois Bell would have had to earn on the value of the property which it employs for the convenience of the public during the period beginning with 1923 and continuing down through 1931, in order that such return would equal that generally being made at the time in this part of the country, on investments in other business enterprises which are attended by corresponding risks and uncertainties, would have been as follows: I think the return in 1923 would have had to have been 8 per cent; in 1924, 8 per cent; in 1925, 8 per cent; in 1926, 8 per cent; in 1927, 8 per cent; in 1928, 7 per cent; in 1929, 7 per cent; in 1930, 7 per cent. In 1931 I think the situation changed, toward the latter part of the year, and the return during the latter part of the year would have had to have been increased to 8 per cent. In 1932, over 8 per cent; it is impossible to say at the moment how much over 8 per cent. I do not think you could assemble the capital to buy or build a public utility on any terms at the present time.

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[fol. 6249] ALLEN G. HOYT, recalled as a witness on behalf of the plaintiff, having been previously duly sworn, further testified as follows:

Cross-examination.

By Mr. Goldstein:

I am, at the present, one of the officers of the National City Bank, having charge of the investment of trust funds, and of the review of investments. In connection with my duties as such, I have had occasion to compare the various classes of securities, and to compare the relative merits of

bonds versus stocks, and to compare the merits of various classes of bonds. I find some bonds that I consider as high grade, some bonds that I consider as medium, and some bonds that I consider as speculative.

I also give consideration to the restrictions that may exist by statute with reference to bonds available for investment in trust funds. I also consider the various classifications, the various requirements, and the various attributes of bonds, apart from the statutory restrictions which have [fol. 6250] become impressed upon the investors and upon me as a banker in connection with my selection of securities for investment. In connection with my determination of these various classes and types of bonds, I have occasion to consult various sources in order to procure the data upon which I form my judgment. Some of those sources are established manuals, annual reports of companies, and the services of statistical companies. The established manuals to which I referred are Poor's Manuals, Moody's Manuals, Standard Statistics, and so forth. The services include Standard Statistics, particularly, and Moody's.

In connection with the various classes of securities, investors have come to think of bonds in certain classifications: bonds legal for savings banks and bonds not legal. They have also come to think of the classifications in the terms in which some of the established services have rated them, that is, as A-1 bonds or as Triple-A bonds. Many investors have in mind those ratings in connection with the type of securities purchased.

We have as fields for bonds, the savings bank, the trust funds, the so-called conservative investor, the so-called speculative investor, and the so-called business man risk investor. And all of these various classes of investors do not buy the same kind of bonds. The savings banks, the trustees, and the conservative investors are very likely to confine their purchases to bonds of the general character rated by Moody as Triple-A bonds. Generally speaking, the trust funds would confine their purchases to Triple-A bonds. The conservative investor would buy a higher-rated, or more conservative bond than the speculative investor.

There are circulars issued by the National City Company in connection with the issues in which it participates, or originates. The circulars which have been handed to me are, I think, very similar to circulars issued by the National City with regard to bond offerings. These circulars

include one concerning $125,000,000 of American Telephone & Telegraph Company, 35-year Sinking Fund, 5 Per Cent Gold Debentures, identified in the margin as Defendants' [fol. 6251] Deposition Exhibit 104. It is typical of its class. There is also a circular entitled: "$150,000,000 American Telephone & Telegraph Company, 35-year, 5 Per Cent Gold Debentures," identified as Defendants' Deposition Exhibit 106. Another one is entitled: "$50,000,000 Illinois Bell Telephone Company First and Refunding Mortgage 5 Per Cent Gold Bonds, Series A," identified as "Defendants' Deposition Exhibit 145. Another is entitled: "$100,000,000 American Telephone & Telegraph Company, 35-year Sinking Fund, 5.5 Per Cent Gold Debenture Bonds," identified as Defendants' Deposition Exhibit 105. Another is entitled: "$25,000,000 International Telephone & Telegraph Corporation, 20-year 5.5 Per Cent Convertible Gold Debenture Bonds" (which was marked Defendants' Exhibit D-7 for identification). There is also a circular entitled: "$40,000,000 New England Telephone & Telegraph Company First Mortgage 4.5 Per Cent Gold Bonds, Series B" (which was marked Defendants' Exhibit D-8 for identification).

These circulars, and the circulars which the National City Company issues, contain the information which the ordinary investor usually looks at in making his investment. They contain the pertinent facts which the bankers believe would be of interest to the prospective buyer, and the letters contained in these circulars directed to the bankers, contain certain information that the banker desires to have in connection with his resale of the securities purchased.

The ordinary investor, in addition to the market condition and the kind of industry, looks at the ratio of the credit obligations to the total book value of the assets. He also looks at the ratio of earnings available for interest requirements over a period of years, and at the amount of book value of the assets behind his obligations. The ordinary investor who invests in capital stock of a company, would look at the amount of outstanding credit obligations ahead of his security. He would also look at the amount of book value of the assets behind his security, and at the amount of earnings available for dividends after deducting [fol. 6252] interest, and all prior charges. He would also look at the per cent of the total earnings available for dividends, which are paid out in dividends. He would also look

at the amount of book value and assets which are used to earn the amount of money which is required to pay his dividends and the extra amount added to surplus.

The liabilities on the balance sheet consist of capital liabilities, bonds and stocks, surplus items, premium on stock, and reserve; those are the principal items. When I say these show on the liability side, I do not necessarily have in mind that, in determining the ratio of the assets available for his stock, or his investment in the company, I would deduct the reserve for depreciation from the plant assets, on the assets side. Some companies carry the reserve for depreciation against plant as a deduction on the assets side. Very few public utilities, as far as I am aware, make a deduction from their plant account on the assets side. Some industrials do. If they are carried on the liability side, and the assets side carries the gross plant, the amount of assets represented by the reserve is helping to earn the money necessary to pay the dividends, provided the total assets on the assets side are invested. In considering the total assets that are used to produce the required earnings, we consider the total assets before the depreciation deduction.

An investor may give consideration to the fact that perhaps the actual value of the assets may be greater than the book value. He certainly gives consideration to the fact that reproduction may be more or less than the book value. In determining the amount of assets which are used to produce the income, for instance, in determining whether it is 8 times the interest requirement or 4 times the dividend requirement, and so forth, the only figure that is available to the investor is the book value of those assets. Of course, the investor and particularly the stock buyer might give a great deal of consideration to the fact that since the plant was built up, construction cost has increased, and there were good grounds to believe that the duplication value greatly [fol. 6253] exceeded the book value. In determining whether the assets will earn 4 times the dividend requirement or the interest requirement, or the total earnings available for interest or for dividends, the investor may compute his ratios upon the basis of the earnings to the asset values as shown on the books of the company.

"Q. Now, you were asked five questions on direct exami-

nation, and I will repeat them to you. The first question was:

'Question. Have you become familiar with the returns that were and are being made by various enterprises in securities in which your company dealt?'

"And the answer was:

'Answer. I have.'

"The Witness: In a general way that is true, yes.

"Mr. Goldstein:

"Q. Yes. I am just—I just want to repeat these questions, and then I will predicate some questions on the basis of your answers, later on. The second question was: 'Question. Have you become familiar with the returns which are being made generally in this part of the country, on investments in public utilities and other businesses?'"

"And your answer was: 'Answer. I think I am.'

"And the question then was: 'Question. In your opinion, Mr. Hoyt, what return must a telephone company such as the Illinois Bell Telephone Company earn on the value of the property which it employs for the convenience of the public in Chicago, in order that such return shall equal that generally being made at this time, in this part of the country, on investments in other business undertakings which are attended by corresponding risks and uncertainties?'

'Answer. At the present time?'

'Question. Yes.'

"And you answered: 'Answer. More than 8 per cent.'

"Then the question was asked: 'Question. In your opinion, what return must a telephone company such as the [fol. 6254] American Telephone & Telegraph Company, doing a nation-wide business, earn on the value of the property which it employs for the convenience of the public, in order that such return shall equal that generally being made at this time, in this country, on investments in other business undertakings, which are attended by corresponding risks and uncertainties?'

"And the answer was: 'Answer. In excess of 8 per cent.'

"Then the question was: 'Question. Now, Mr. Hoyt, would you state the return which a telephone company such as the Illinois Bell would have to earn during the period beginning with 1923, and continuing down to 1931, stating

the return by years, assuming the same conditions that I asked you about with regard to the present time.'

"And your answer was: 'Answer. I think that the return in 1923 would have had to have been 8 per cent; in 1924, 8 per cent; in 1925, 8 per cent; in 1926, 8 per cent; in 1927, 8 per cent; in 1928, 7 per cent; in 1929, 7 per cent; in 1930, 7 per cent. In 1931 I think the situation changed towards the latter part of the year, and the return during the latter part of the year would have had to have been increased to 8 per cent.'

"Now, those were the questions and the answers. What I would like to ask you is this: What did you understand by the word 'property' as used in each of the questions?

"A. The fair value of the property. As I take it, a utility is entitled to rates which will produce net earnings equal to a reasonable return on the fair value of the property."

I understood the word "property" in those questions to be whatever the value should be. If you are going to enlist capital for enterprises, the return must be based upon the capital equal to the value of the plant. Referring to the first of these questions, when I said that I have become familiar with the returns that were and are being made by various enterprises in the case of the securities in which my company dealt, by the word "returns" I meant largely, [fol. 6255] as far as the bonds were concerned, the yield on the bonds. As to stocks, I meant the question of dividend paid and the relation of earnings to dividend, and the question, generally speaking, of asset value to par value, or number of shares outstanding.

In answer to the second question, I stated that I am familiar with the returns which are being made generally in this part of the country on investments in public utility and other businesses. I understood the word "investments" to mean the capital embraced or embarked in the public utility undertakings. I understood that word to mean all of the money which the investor would put in at the time if he were buying or building an undertaking of this kind. It is true, I am looking at the investor's equity in the business, but I am looking particularly at the total value of the property; the total that might be embraced in the value of the property in bonds, stocks, surplus, and whatever else there might be.

In speaking of the 8 per cent return and the 7 per cent

return that the investor would require on the investment in public utility enterprises with similar risks and uncertainties as the Illinois Bell, I did not have in mind that the bondholder would require 8 per cent return and the stockholder would require 8 per cent return. I assumed that if a group of capitalists advanced or raised an amount of capital to buy the undertaking outright, then this group might subsequently issue a certain amount of bonds, and a certain amount of stock in order to finance that investment. The bonds would bear a much lesser rate than 8 per cent, and the stock earnings would be over 8 per cent, probably, under a sound and, as close as may be, a fair recapitalization. I would consider the 8 per cent as 8 per cent on both the stocks and the bonds.

I had in mind what the average investor, who would put his money into that kind of enterprise, would expect. I have had in mind the return which a group of capitalists or bankers would expect in the first instance to raise the capital. They would depend more or less upon the investment market to distribute, in whole or in part, the securities [fol. 6256] after the capital had been enlisted in the enterprise. The return that would be expected on the capital put in by the bankers would depend to some extent upon the market conditions, upon the selling resistance, and upon the type of investment that they could resell.

I think that there are a certain amount of bonds and a certain amount of stocks that might be issued to raise the funds, and my experience leads me to believe also that certain dividends would have to be paid on that stock, and that the earnings would have to exceed the dividend paid. In measuring the 8 per cent return, the necessity of which I have testified to, I had in mind the amounts necessary to take care of the interest expected to be paid upon the bonds to be issued, and the earnings applicable to the stock. The return in relation to the requirements for interest and dividends and the margin above the dividend requirements are taken into consideration.

I have spoken of my familiarity with the Bell System, and with the fact that my Company has participated in syndicates that purchased and sold the bond issues of certain of the subsidiary companies, like the Northwestern Bell, the New York Telephone Company, the New England

Telephone Company, and the Southwestern Bell, and also A. T. & T. bonds. I have also spoken of the total amount of assets of the Bell System as shown on a consolidated basis, and the total amount of the earnings of the Bell System on a consolidated basis. When I spoke of the Bell System, I thought of it as a unit of which the A. T. & T. was the head. I was speaking of the A. T. & T. owned properties and subsidiaries, consolidated. When I spoke of it in that light, I also spoke of the A. T. & T. and the subsidiary companies as a unit engaged in the telephone business proper, in the manufacturing business of the Western Electric, in the phonograph business, in the moving picture business, the telegraph business, the radio business, and, to a certain extent, in the television business.

I do not remember how much capital was attracted to the [fol. 6257] Bell System during the period from 1923 to 1931, but I remember it was a very large amount. I do not have the exact figures before me. The figure of $1,820,000,000, of which $520,000,000 was bonds, given by counsel for defendants, sounds right.

I think the Bell System securities by and large during that period were well regarded; and to a degree they got what is known as cheap money.

The Bell System has in the United States, I think, some 16,000,000 telephones, out of a total of 20,000,000 or somewhat less. I do not know how many companies operate the 4,000,000 that are outside the Bell System. There must be quite a large number of such companies. There are very few companies outside of the Bell System operating in cities of 250,000 or over. I do not think of any which operate in a city over that size. Neither do I think of any in this country operating in cities of over 100,000. The only company of any size that I recall is, I think, a company called the Lincoln Telephone Company, the size of which I do not know. It is located in Lincoln, Nebraska. There are few large telephone companies outside of the Bell System. I do not think of any telephone company in this country outside of the Bell System that would require, say, $5,000,000 or $10,000,000 of capital.

The actual earnings of the Bell System, on a consolidated basis, on the book value of its assets, as shown on the balance sheet, varied from around 6 per cent to a rate, in 1931, of slightly over 5 per cent. The return of some of the subsidiaries on the book value was probably a little

higher than this 5 or 6 per cent, but some of them were not greatly at variance. In 1931, according to the annual report of the A. T. & T. which has just been released, I think the earnings, on a consolidated basis, were only slightly over 5 per cent. In 1930 they were 5.8 per cent, and in earlier years a little more, but I have not the per cent in mind.

The cost of borrowed money to a utility consists of two things: the discount in the price paid by the bankers, and [fol. 6258] the expense incurred by the company in trustees' fees, certification fees, registration, and things of that nature. The price that a banker or underwriter pays to a company for its bonds represents the wholesale price, and the price that the banker gets on resale to investors is the retail price. The banker must have a certain margin in order to cover expenses and profit, and that margin below the list or offered price to the investor is the wholesale price. He bears in mind the retail price in determining what his wholesale price is going to be.

The original offering of the bonds of the Illinois Bell Telephone Company in 1923 was about 95, to yield about 5¼ per cent. I do not know the yield-on-offering price of any other Bell Telephone security during the period 1923 to 1931.

Recently, I think, the Telephone Company and the telephone industry have enjoyed better credit than the railroad industry. That means that they have been able to sell their bonds at a lower yield, and they have borrowed money at lower cost than the railroad industry. I think that in the earlier years of the period 1923 to 1931, by and large, the Telephone Company securities compared very favorably with the railroad. As I recall, the railroads were returned by the Government in 1920, after Government operation, with some difficulties. In any event, I would say that the telephone industry compared favorably with the railroad. Perhaps some railroads could borrow a little more cheaply than the Telephone Company, and others could not.

The Bell Telephone funded debt obligations, by and large, compared favorably with other public utilities during the period 1923 to 1931. I would say that the bonds of the Telephone Company, bearing the same coupon rate and having the same maturity, probably sold a little higher than the average of other public utilities. The yield to the investor was a little lower in the case of the Telephone Company, although the mortgage bonds of the better utilities,

like the Consolidated Gas Company and its subsidiary, the New York Edison Company, would sell on just about the [fol. 6259] same level as the mortgage bonds of some of the more important subsidiaries of the Telephone Company.

The A. T. & T. obligations are all debenture obligations. Most of them are not secured. If, however, you were to compare them with the debenture obligations of the electric light and power industry, or the gas industry, I should think that the rate of return produced by those obligations at the market price would be very similar to the electric light and power. I would say that the mortgage obligations of a subsidiary of the Bell System, like the Illinois Bell Telephone Company, would compare favorably with the mortgage obligations of the gas and electric light utilities; the yield would be very similar to the better obligations.

There are probably 20 or 25 of the better grade gas and electric companies that issue credit obligations in excess of $5,000,000.

There are, relatively speaking, a small percentage of companies in the gas and electric light industry that is sued securities during the period 1923 to 1931 which had funded debt obligations of $5,000,000 or over, and those I would consider to be the high-grade companies which I compare with the Illinois Bell for relative yields. I do not have the figures showing the total amount of money acquired by gas and electric utilities through credit obligations during the period 1923 to 1931. I do not know what percentage of the total amount of money acquired through the sale of credit obligations was acquired on the same basis of offering yield approximating that of the Illinois Bell. I would say not a very large percentage. It would be less than 50 per cent, but I am not sure that it would be less than 25 per cent.

Assuming that market conditions are the same and that bonds are issued by various companies, the ratio of earnings to bond interest is very important in the determination of the difference in the yield to investors of the various classes of bond issues. The record of the company over a [fol. 6260] period of time is important; the ratio of indebtedness to assets is important; the character of the business and the management of the company are important. Those, I think, are the primary things.

I only know the ratio of funded debt to capitalization in

the Bell System on a consolidated basis. The Illinois Bell Telephone Company has outstanding slightly under $50,000,000 of bonds and about $150,000,000 of stock. The entire Bell System has a bonded indebtedness of about $1,000,000,000. The capitalization of the entire System on a consolidated basis is somewhat over $2,000,000,000. The total of bonds and stocks outstanding on a consolidated basis is approximately $3,250,000,000. The $1,000,000,000 outstanding funded debt includes the funded debt of the subsidiary companies and the A. T. & T. These figures which I have just mentioned were as of 1931 and based upon the 1931 annual report. The proportion of bonds to total capitalization has come down over the period 1923 to 1931; there were more bonds and less stock earlier in the period. That would be very helpful in improving the credit of the Company. The total assets of the Bell System on a consolidated basis in 1931 are about $5,000,000,000 and the funded debt is about $1,000,000,000. The relationship between funded debt and total assets has also improved during the period between 1923 and 1931, which was helpful in keeping up and improving the credit of the System.

The capital stock of the Illinois Bell Telephone Company has increased materially since 1923. There has been no increase in bonded debt, so the ratio has been improving from a securities and credit standpoint. That has the same salutory effect upon the credit of the Company; it is healthy. The total assets of the Illinois Bell at the present time are about $320,000,000, and outstanding stocks and bonds of $200,000,000, as shown by the books, and that has grown during this period from 1923 to 1931, inclusive.

The Chicago property of the Illinois Bell, I think, is approximately two-thirds of the property of the Company. I did not have in mind that the ratio of outstanding obliga- [fol. 6261] tions for the Chicago property would be in about the same proportion as the total outstanding obligations of the entire Company. I do not know how they would allocate a part of the outstanding capitalization to a part of the property, but I understand that the book value of the assets of the Company in Chicago is about two-thirds of the total and I assumed it to be that throughout.

In my opinion, those companies whose bonds sell to the investor at an offering price to yield, say, 5.5 per cent, compete to some extent for the capital of the investor against a bond selling on a yield-on-offering price of 6.5

to 7 per cent. But the bonds on the basis of 5.5 per cent look to a rather different class of investors than those of the corporation that has to pay 6.5 per cent for its money. To a considerable extent, the type of investor to be attracted by bonds sold to yield 5 or 5.5 per cent will be different from that attracted by bonds sold to yield 6.5 to 7 per cent. With the variation in the retail price of the bonds, the banker takes into account the selling resistance in determining the wholesale price. It is usually more expensive to sell a speculative type of bond, I think, than to sell a high-grade issue. There is some relation between the type of issue and the discount or annual charge. I can tell about what the maximum spread was between the retail and wholesale price of Bell Telephone bonds during the period 1923 to 1930. It varied from 4 to 3¼ per cent. This, translated into annual charge, was probably a quarter to .3 of 1 per cent. The spread in the case of gas and electric companies was very similar, some running somewhat higher and some somewhat lower; that is, there was a greater spread, although not as high as a per cent greater, unless it was a case of a very short obligation. I have been talking of high-grade securities, but it is very unlikely that there would be a spread as high as 1 per cent in the case of speculative obligations. In connection with high-grade securities, I should say that .4 of 1 per cent would be the maximum spread on the basis of annual charge. It might possibly be one-half of 1 per cent.

I would consider from 5⅛ to 5¾ per cent to be a fair [fol. 6262] yield to the investor on offering price of these high-grade bonds during this period. The corresponding yield on medium-grade bonds during this period, I should say, would be from 5.5 to 6.5 per cent; on speculative bonds, from 6.5 per cent to 8 per cent, perhaps.

I did not assume that any of these public utilities were financed on a speculative basis from a bond standpoint. I assumed that all of the borrowed money would be on high-grade securities. In speaking of the gas and electric companies, I had in mind fairly sizeable and relatively strong companies.

When I spoke of the investor and what the investor would expect, I had in mind the ordinary investor. What the ordinary investor expects when he buys a bond depends on the type of bond. The ordinary investor would buy an

ordinary type of bond. He expects, when he purchases a bond, to get his interest as stipulated; he expects to get his money back on a definite maturity date as stipulated in his bond; and he would expect to get whatever additional money the company agreed to pay if his bond were retired in advance of maturity. He would also expect to get priority in the distribution of assets upon dissolution or distribution of assets, or in the case of bankruptcy.

The investor who puts his money in stock expects to get the dividends declared by the directors; he has an equity in the undivided profits. Upon dissolution or liquidation, he expects to get his proportionate share of the total assets remaining after taking care of all prior claims. He also expects to participate in the management of the corporation to the extent to which he has the right to vote or participate.

It would not make much difference to the stockholder, provided he received a return which was acceptable to him, that the company in which he made his investment would use its own employees, without charge to the investor, to help the investor sell his own securities in order to raise the money to subscribe to the stock or bonds of the company in which he makes his investment.

[fol. 6263]. "Q. He would not expect the company to help him raise the money to subscribe for the stock, would he?

"A. He would not expect the company?

"Q. Yes, to help him raise the money to subscribe for the stock in that company.

"A. He, the stockholder——

"Q. Yes.

"A. —would not expect the company to help him, the stockholder?

"Q. Yes, raise the money in order to subscribe for that stock; that is his own affair, is it not, to raise the money?

"A. Yes.

"Q. I beg your pardon?

"A. Yes. The company might make it helpful by issuing information, or what-not."

The question of a corporation investing in a subsidiary corporation, expecting the subsidiary to use its employees, at its own expense, to assist the stockholding company to sell its own securities is one of management; I cannot answer that very well. There might perhaps be advantages to the stockholder of the subsidiary company to have the

securities of the parent company distributed in its territory.

"Q. Let us take Company A and Company B. Company B is about to purchase stock in Company A, and desires to get the necessary money in order to purchase that stock. Company B has Company A use the A Company's employees to sell bonds of the B Company, to raise money to permit the B Company to purchase stock of the A Company. Now, if B were the ordinary investor, would it expect A to help it raise the money to purchase that stock?

"A. Well now, if you carry that through to your logical conclusion, then B is the only stockholder in A.

"Q. Well, whether it is the only stockholder or a large stockholder, it makes no difference, it is immaterial.

"A. So that if A spent some money for the benefit of B, it would be spending it for the benefit of the principal stockholder?

"Q. That is right.

[fol. 6264] "A. Well, why not?"

The ordinary investor does not, I should say, expect the corporation of whose shares he expects to make a purchase, to raise the money so that he, the investor, can buy shares in the corporation.

"Q. Yes, sir. Now, similarly, would that same investor expect the company in which he makes the investment to defray any of the expenses incurred by the investor himself, in raising the money to make the investment?

"Mr. Blackman: I object to that as not proper cross-examination.

"Mr. Goldstein: I am testing what he considers the ordinary investment.

"Judge Wilkerson: Well, I will allow a liberal cross-examination on both sides. He may answer.

"A. The ordinary investor, I would think, would not expect that.

"Mr. Goldstein: Now, in thinking of the ordinary investor, and in making the ordinary investment, did you consider that the company in which the investment was made, was a component part of a large system to which the benefits of the company's operations accrued, and the stock

in the system companies was all owned by the same investor?

"A. I was considering the matter with reference to the Illinois Bell Telephone Company, as though it were an independent entity.

"Q. Did you consider in your determination of what the ordinary investor would expect, or what you would consider that the ordinary investor would expect, that the company in which he owns the investment in stock would perform without charge whatever services were necessary to permit the employees of the company to purchase stock of the investor on the installment plan?

"A. He probably would not give—the investor would not give a detail of management of that kind very much consideration.

"Q. He would not expect to have that done for nothing, would he?

[fol. 6265] "A. Well, on the statement as you have made it, I would think not."

In determining what return the average investor would expect of the Illinois Bell, I did not give consideration to the fact that the Company's employees and the employees of other companies in the Bell System are all joined under a plan where the investor, the A. T. & T. Co., can shift employees around from one organization to another as the investor sees fit.

By the Court:

It is not my contention, nor did I advance the idea here that in arriving at a conclusion as to what is a fair return upon money devoted to the public use, the Court is to arrive at any different conclusion because it happens to be the money of one company rather than another. The test is what is a fair return upon money devoted to public use; and it makes no difference whose money it is, nor what the capitalization is, nor whether it is the money of the Standard Oil Company or of any one else.

"Judge Wilkerson: I just wanted to make sure in my own mind whether, in arriving at his conclusion as to what, in his opinion as an expert, the fair return upon this money that is devoted to the public use is, he has given any consideration to the fact that the money which was devoted

to the public use was my money, we will say, or the money of the American Telephone & Telegraph Company, rather than the money of some other company.

"Mr. Goldstein: And did not take into account the relation between the investor and the company in which the investment is made.

"Judge Wilkerson: As to what is the test, what are the elements properly to be considered, I suppose the Court would have to decide that, when the Court arrives at a conclusion as to what is the fair return upon money devoted to the public use. And I was wondering whether there was any contention here that it made any difference whose money it was.

"Mr. Blackman: So far as we are concerned, we make no such contention. And, following up your Honor's con-
[fol. 6266] tention, I would like to point out that in my questions I did not ask what the fair return was. I followed the language of the Supreme Court in the Bluefield case, and asked this witness what rate of return this Company would have to earn in order to earn the same return that was being made by other companies at this time in this part of the world, subject to the same risks and uncertainties.

"Mr. Goldstein: But you did not ask him any questions required by the Smith case, in the decision of the Court.

"Did you take into account in determining what your ordinary investor would require, the return that he expected, and in thinking of the Illinois Bell and its relation to that ordinary investor, the fact that this Company was required to make a detailed statement each year, and for a period of years, in advance of its requirements for the purchase of supplies and materials, and furnish those statements to the investor, to be used by the manufacturing company of those supplies and materials in which the investor also owns the stock?

"A. I assumed the Company would have efficient management, and that whatever policy efficient management dictated, would be followed. I did not think of the detail of filing in advance——

"Q. Statements?

"A. —schedules of this kind."

I assumed that the management would file detailed statements with its own Board of Directors. As far as the in-

vestor represented control of the Company, he would, through his officers or the Board of Directors, determine the amount of extensions, or additions, and the purchases of the Company. It would be the owners acting through their representatives that would determine that. It would be the owner, whether it was the average investor, or what-not. The stockholders elect the directors, and the directors represent the stockholders. It is through the election of the directors that the ordinary stockholder would control the corporation.

I did not take into account the fact that the investor, as [fol. 6267] such, apart from the Board of Directors, would specify who should be the seller of apparatus purchased by the Company in which he made his investment. I did not take into account that the investor, as such, apart from the Board of Directors, would specify who the manufacturer of the apparatus should be.

"Q. Did you take into account the fact that the company in which the investor made his investment is required to share the expense of research which is undertaken by the investor himself, so that any new discoveries that are made in the business would be woven into the plant in which he has his investment?

"A. Not unless the Board of Directors should determine that such a policy was in the interests of the local company.

"Q. Yes. It would be—pardon me?

"A. In other words, to get value received for that expenditure.

"Q. It would be treated as a separate item?

"A. Yes, sir.

"Q. And would you take into account the fact that, if the investor were to undertake the research himself apart from the Board of Directors, and should in the course of that research come upon inventions that were applicable to fields other than the field of operation of the company, the investor could keep all of the profits of those outside activities without accounting to the company?

"A. I did not take that fact into consideration."

In answering the above questions about the Illinois Bell, I assumed that the Illinois Bell was operating as a separate unit and would raise its money as a separate unit in relation to the public. I did not assume that the Illinois Bell was a component part of a system, headed by one

company, which raised the capital for all the component parts of the system, at their expense, by the issue of one well and nationally known security as the source of funds for all.

I stated in the course of my direct examination that investments in the telephone business are attended with certain risks and uncertainties. The Telephone Company is [fol. 6268] limited, as far as its profits are concerned, by reason of regulation. There is a hazard in connection with the telephone business by reason of the fact that if at any time, on account of increased operating expenses, or for other causes, the return becomes inadequate, the procedure of obtaining relief is usually drawn out for a number of years and during this period of inadequate rates the company suffers a certain loss, which is gone forever because the regulatory body or the courts, in afterwards adjusting the rates, do not make allowances which will permit the company to make up the loss incurred during a period of litigation.

The Telephone Company suffers (or makes an unfavorable comparison with respect to other public utilities, particularly electric and gas companies), because the investment per station in the telephone business tends to increase, and, as the overhead represented by that investment is one of the principal items of true cost of service, to that extent the cost per station goes up, and the return becomes less. The Telephone Company is also at a disadvantage by reason of the fact that, in the event of declining business, it has less flexiblility in adjusting its operations.

I think that, in the development of its business during the past few years, the Telephone Company has reached a clientele of more moderate circumstances than the average subscribers of a few years ago. Therefore, in a business depression, the Company is more vulnerable on account of the danger of losing subscribers than it was in the earlier period. An investor would take that into account.

Some investors think that the development of wireless communication offers something of a threat to investments in telephone communication by wire. The investor in a telephone utility might also fear that the use of the reproduction cost basis for rate-making purposes would reduce

the rate base in part, and, therefore, reduce his dividend payments.

In giving my opinion as to the necessity of earning 8 per cent or 7 per cent on the value of the property of the Illinois Bell Telephone Company, I was taking into consideration the risks.

[fol. 6269] The resale price of bonds is not a complete criterion of the price at which the company would have to sell its bonds to attract capital; it has some significance, depending upon conditions. But if a similar bond sells occasionally at a certain price, it means that a large issue of $50,000,000 or $100,000,000 can probably be floated a few points below that price. It is impossible to generalize completely upon that. The resale price of securities of the company has some relation to the opinion of the investors, and the degree of stability of the business. The price at which the securities sell provides some indication of how the investor regards that company.

I would expect the risks which I mentioned, and particularly those which would affect the telephone companies in times of depression, to be reflected in the prices of telephone securities during a period of depression. I think the Illinois Bell bonds have had a favorable market during practically all of the period 1923 to 1931, as compared with the resale yield of gas and electric companies' securities.

In defining the period of depression, I think the present and prospective situation must be taken into consideration. When I say "present," I mean today and I would go back as far as the beginning or the middle of 1930.

The resale prices of Bell System credit obligations have compared very favorably with the resale prices of railroad credit obligations.

By the Court:

There are $5,000,000,000 behind Bell System bonds. The amount of the bonds is $1,000,000,000. There are five to one, approximately, back of the bonds. It would be impossible to raise the $5,000,000,000 on bonds alone.

"Mr. Goldstein: The witness says the original sale price would be affected by certain risks, and he says the same risks would likewise affect them on resale."

I did not say that the resale prices of credit obligations of the Company would be affected by certain risks; that would only happen to a small extent; the total investment would be affected.

[fol. 6270] "Judge Wilkerson: I do not believe anybody in the world would contend that you ever had a company that could raise all of the money it had to have to acquire the property devoted to public service, by issuing bonds against all of the property at 5 per cent.

"Mr. Goldstein: No, but the amount that the investor would expect to get out of the balance of the capital would depend upon the character of the credit obligations as well, and the interest rate.

"Judge Wilkerson: Of course, you have the stock, but that is speculative.

"Mr. Goldstein: Yes, but the degree of speculation would depend upon the character of the industry, the character of the company, which is determined likewise in the sale of the bonds.

"Judge Wilkerson: Well, experience is a pretty good teacher with respect to that, is it not?

"Mr. Goldstein: I am just testing the witness as to what he knows about the experience on this point—which we will show."

I spoke of an 8 or 7 per cent return on the value of the property devoted to public use during the years 1923 to 1931. Assuming a sound capitalization, the amount of dollars resulting from such a return, and the amount of dollars necessary to pay the interest and dividends, and have a margin for surplus, would be similar. If I were to assume that the Company in this case stated a fair value of the property which it employed for the convenience of the public in Chicago as X dollars in the years 1923 to 1931, inclusive, I would consider very inadequate a return on that value equal to 3 per cent, but which took care of all expenses, the interest, and amortization of the bonds, and yielded $9 per share for every $100 of investors' money in the capital stock. I would think further that, for some reason, the capitalization had been very much less than the X dollars of the assumption. If it were otherwise, the 3 per cent on the X dollars would not pay the interest and dividends stated. If you have $100,000,000 of capitalization

and $300,000,000 of property, of course, a very small return [fol. 6271] on the $300,000,000 would provide a very substantial return upon the $100,000,000.

If I found as a result of the small ratio of outstanding bonds and stocks that a small return on the property was sufficient to pay $9 per share for every $100 invested, I would think that the $9 to $10 a share would mean that those shares were very good. On that kind of showing, the Company probably would be able, under efficient and economical management, to maintain and support its credit, and it would probably be possible to raise the money necessary for the proper discharge of its public duties. If the return on the value of the property was $11 per share, or more than $10, it would probably be more than sufficient.

In speaking of electric and gas companies, I particularly referred to the electric power industry; I would include in my electric companies the light and power companies.

Speaking of the hazards of the telephone business, I stated that if the courts were to give reproduction value weight in determining the rate basis, the investment might suffer as to that part of the plant constructed during the period of higher costs than those which may be experienced in the future, if the decline in construction costs, some of which we are experiencing now, continues. The period of high construction costs would include 1923. If the entire plant were valued on the basis of unit costs prevailing during any of the years from 1923 to 1930, when prices were high, I should say that the hazards were increased.

The ordinary investor might have expected at the time that the prices prevailing in the years 1923 to 1930 would be likely to prevail for a reasonable period in the immediate future. Recent experiences have now called the question into doubt; since the beginning of 1930, developments, I think, have begun to bring the question before the minds of investors, but not before that.

By the Court:

Of course, there has always been some debate on that subject, and a very sharp debate on that point, even during [fol. 6271a] 1928 and 1929. Of course, during a part of those years, the companies believed, as many investors believed, that that part of the plant constructed prior to the outbreak of the World War, and still in service, had a value

in excess of the book value, because the duplication value was greater than the cost.

By Mr. Goldstein:

That was judged by the spot prices of the year which they were thinking about.

By the Court:

I have testified on the rate of return, in a number of utility cases during the period in question here, and have given the matter a great deal of thought. I came to the conclusion, in the light of the information available to me in those years, that the return to which I have testified would have been necessary in those years. I have put out of my mind, in giving these rates, the economic experience since the Supreme Court wrote the opinion in this case, and have endeavored to state these rates upon the facts as they existed at the respective dates.

Redirect examination.

By Mr. Blackman:

I do not know that I can give the approximate dates of the cases in which I have testified, but during the period from 1921 until, I think, 1927, I testified in connection with the rate of return in two cases involving the Consolidated Gas Company. I testified before the New York Commission in two cases involving the New York Edison Company. I testified before the Commission, and later before the Master, in connection with a case involving the New York Telephone Company. I testified in Baltimore before the Commission in one case involving the United Railway & Electric Company, and in another case involving the Consolidated Gas, Electric & Power Company of Baltimore. I have also testified in some smaller cases during that period. That covered pretty well the period from 1921 to 1927.

At those times I prophesied generally the same things [fol. 6271b] which I have prophesied today, and used the same rates of return generally. The last case prior to this one in which I testified was, I think, the New York Telephone case, in 1927, when I believed that an 8 per cent return was necessary.

Now, in 1928, 1929 and 1930, it seems to me that confidence was pretty general in this country. The supply of

capital was relatively large, and therefore it probably would have been possible to finance public utilities during these years on a 7 per cent basis instead of 8. It is a very close question, however.

I have testified to an 8 per cent return in all these other cases that I have referred to. Several of these cases went to the Supreme Court of the United States. I testified to an 8 per cent return, and the 8 per cent was, I think, the rate sustained very largely.

When I made a comparison of the hazards of the telephone business with those of gas and electric companies, it was after having studied those companies, and being familiar with them, and having testified for them as to the proper rate of return in those industries.

One of the advertisements to which my Company's name was signed, shown to me on cross-examination, was Defendants' Deposition Exhibit 106. This sets forth a relatively recent offering of the American Telephone and Telegraph Company, 35-year, 5 Per Cent Gold Debentures, amounting to $150,000,000, and offered to the public February 1, 1930, at a price of 99½. The last column to the right (those figures appearing in the center of the page of this exhibit), reports or summarizes the net earnings of the American Telephone and Telegraph Company available for interest. It shows that the interest charges were earned, during the years hereafter stated, the following number of times: 1924, 6.4; 1925, 5.9; 1926, 6.3; 1927, 6.9; and 1928, 7.4. That, plus the other information available to the average investor, showed that he could purchase bonds of the American Telephone and Telegraph Company with very little risk. That risk was small because the indebtedness bears such a very moderate proportion to the property [fol. 6272] value and to the capitalization as a whole; that is, the $1,000,000,000 of bonds I have referred to, compared with the $5,000,000,000 of book assets, which is about 20 per cent.

The American Telephone and Telegraph Company itself, during this period, showed a ratio of bonds to total assets of as low as 15 per cent.

I have seen a booklet or circular of the Bell Securities Company, a subsidiary of the American Telephone and Telegraph Company, issued some years ago, in which the

statement appeared that the actual value of the properties of the Company was far in excess of the book value. By and large, I think that statements of that kind by the American Telephone and Telegraph Company and the Bell Securities Company are regarded by bankers and investors as being reliable.

When I said that the bonds of the Bell System compared favorably with bonds of gas companies, I had in mind the fact that the bond interest was earned from 5.9 to 7.4 times in the case of the securities of the Bell System, and that the bonded debt of the Bell System, as compared with the earnings and property value, was very moderate. I do not know of any gas company or electric company of first rank that has a bonded indebtedness quite as low as that of the Bell System. Some of them are approximately as low.

The bonded indebtedness of a large, conservative gas or electric Company runs from 30 to 40 per cent of the property value. It is rather questionable whether a public utility could maintain its credit if it permitted its borrowings to exceed materially 30 to 40 per cent of the property value.

In considering the rate of return for the Illinois Bell Telephone Company, I considered that Company as an independent entity, because I have had to assume that this business is to attract the capital necessary to reproduce it, and what the expectations would be. If we obtained the capital from a group of investors, the Company would have to be disconnected from the Bell System in order to give an indication as to what capital would be expected; that is, if the Illinois Bell were to appeal to the public for funds, and [fol. 6273] were to raise any great part of its money on stock, it would have to be pretty completely divorced from the Bell System, because as long as the American Telephone and Telegraph Company was a susbtantial stockholder in the Illinois Bell Telephone Company, the Illinois Bell would have no financial worries, and its securities would sell on a very high basis, perhaps, which would not give an indication of what the investor in a public utility enterprise would expect if it were on an independent basis.

I have stated that, in my opinion, a telephone company, such as the American Telephone and Telegraph Company, doing a nation-wide business, should earn on the value of the property which it employs for the convenience of the public, in order that such return shall equal that being gen-

erally paid at this time in this country on investments in other business undertakings which are attended by corresponding risks and uncertainties, in excess of 8 per cent. The percentages necessary, in my opinion, in the years prior to 1932 would be: in the latter part of 1931, 8 per cent; in the earlier part, 7 per cent; 1930, 7 per cent; 1929, 7 per cent; 1928, 7 per cent; 1927, 8 per cent; 1926, 8 per cent; 1925, 8 per cent; 1924, 8 per cent; 1923, 8 per cent.

It is my opinion that, no matter how the money was obtained, whether by the Illinois Bell Telephone Company itself or through the American Telephone and Telegraph Company, the return would have to be the rates which I have stated on the fair value of the property in each of the various years.

It would make no difference, in my opinion, in that respect, if we took into account that the Illinois Bell Telephone Company was a part of a large system organized for the purposes of maintaining the credit of the constituent companies, and securing their efficient and economical management.

[fol. 6274] Recross-examination.

By Mr. Goldstein:

The A. T. & T. bond issue of which I spoke is a debenture bond issue. A debenture bond issue ordinarily has no specific security behind it. There are other types of bond issues, such as a bond issue of the Illinois Bell Telephone Company secured by a lien on fixed assets. There is occasionally a bond issue secured by a lien on stocks, and also bond issues which are debenture issues having convertible features. The mortgage bonds of a company usually sell at a more favorable price, and on a lower interest basis than the unsecured obligations. The investor probably would not expect to have the same margin of earnings to interest in the case of a fixed lien bond as he would in the case of a debenture bond, although whether the bonded debt is secured by lien or not, if it exceeds a certain proportion of the capitalization or property value, the bonds will lose their credit standing. I would expect a higher-grade debenture bond issue to have a greater number of times interest earning capacity than I would a mortgage bond.

The case of the United Railway & Electric Company of Baltimore, in which I testified, was the case that went to the

United States Supreme Court, known as the Baltimore Railway case. I cannot recall the year of that case, and am not confident it was the same case in which I testified before the Commission which afterwards went up to the Supreme Court, but I did testify in connection with a case of the Company before the Maryland Commission. I think the case decided by the Supreme Court grew out of the same proceedings that I testified in originally, but I am not confident. The Consolidated Gas case in which I testified went to the United States Supreme Court. I believe I testified in regard to the 85 Cent Gas Case and also in regard to the so-called "Dollar Gas Case." I do not think I testified in any other case that went to the United States Supreme Court. The only case in which I testified that I positively know went to the Supreme Court is the Consolidated Gas case, and perhaps the Baltimore Railway case.

[fol. 6275] I cannot recall exactly what I testified to in the Baltimore case, but I think I testified at that time that an investor in a company similar to that would expect to have, in order to attract capital, a return in excess of 8 per cent.

"Mr. Haight: I would like to place on the record, if your Honor please, a motion to strike all of the testimony of this witness on the ground it appears, both upon his direct and upon his cross-examination, that he was giving opinions in respect to the Illinois Bell Telephone Company as an ordinary public utility, and that showing upon both direct and cross-examination is not in any wise helped by the last question asked by counsel for the plaintiff on re-direct examination, in which he quoted a part of a sentence from the opinion of the Supreme Court, that part being this: 'one that is part of a large system organized for the purpose of maintaining the credit of the constituent companies and securing their efficient and economical management.'

"The inclusion of that part of the sentence of the Supreme Court's opinion, and getting the answer from this witness that in the witness' opinion that would make no difference to him whatever, he would give the same answers in respect to such situation as he would in regard to the ordinary public utility, separate, and in the usual situation——

"The Court: I did not so understand the testimony. I thought what he testified was, in his opinion the Illinois

Bell Company was just as good as the American Telephone and Telegraph Company when it came to raising money. Sometimes the big company is worse than the little one.

"Mr. Blackman: Not the same amounts, of course, but the same relative amounts.

"The Court: Sometimes the little company's credit is better than the big one's.

"Mr. Haight: The entire sentence in the opinion is this: 'It is evident that in the present case we are not dealing with an ordinary public utility company, but with one that [fol. 6276] is part of a large system organized for the purpose of maintaining the credit of the constituent companies and securing their efficient and economical management.'

"Whatever he meant by the answer to the last question on re-direct examination, the motion to strike is just the same.

"The Court: Have you anything to add to that? Did you consider the fact that practically all of the stock of the Illinois Bell Telephone Company is owned by the American Telephone and Telegraph Company, and that as a result, the Illinois Bell Telephone Company is one of the units in this vast system?

"A. I assumed that you could enlist capital necessary for this purpose for a telephone company in this district, independent of the A. T. & T., and one which was efficiently managed.

"The Court: The motion of counsel will be noted on the record. I would not care to pass on that without consultation with the entire Court. The ruling will be reserved until the case is argued before the entire Court."

Redirect examination.

By Mr. Blackman:

"Q. Mr. Hoyt, if we assume that the Illinois Bell Telephone Company is a part of a large system, organized for the purpose of maintaining the credit of the constituent companies and securing their efficient and economical management, and that there is a parent company which furnishes funds, or the greater part of the funds for these companies for their expansion, it would be necessary to take into account, viewing the rate of return on that basis, what it would cost the parent company, would it not?

"Mr. Haight: I object to the question because the assumption made in the question omits very many of the inherencies of the relationship between the A. T. & T. and the plaintiff in this case.

"The Court: He may answer.

"A. If the requirements of the Illinois Bell were to be financed by the A. T. & T., of course, that fact would have to be taken into consideration."

[fol. 6277] If the Illinois Bell and all the other 24 subsidiary companies of the Bell System were to be financed by the A. T. & T., and I wanted to know what it cost to do that financing, then I would have to know at what price the American Telephone and Telegraph Company financed its entire requirements, based on the entire value of its property.

It was with that in view that I made the statements that I did as to the rate of return, or the percentages for the years 1923 to 1932, inclusive. I also had in mind, as far as the Illinois Bell is concerned, the rate of return which would be necessary to enlist the capital in that corporation, whether an individual or a corporate stockholder. That return would have to be expected; that would have to be the expectation.

"Mr. Haight: We renew the motion to strike. The only purpose of renewing the motion is that it may include the testimony of the witness on re-redirect.

"The Court: Ruling reserved."

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[fol. 6278] CARROLL O. BICKELHAUPT, called as a witness on behalf of the plaintiff, having been first duly sworn, was examined and testified as follows:

Direct examination.

By Mr. Thompson:

My name is Carroll O. Bickelhaupt. I live in New York City. At this time I am Assistant Vice President of the American Telephone and Telegraph Company, with which Company I have been connected from the time of my graduation from the University of Wisconsin, in 1911, continuously down to the present time, except for a period of five

and a half years, when I was associated with the Southern Bell Telephone Company.

The first telephone experience that I had was with the Dakota Central Telephone Company, in Aberdeen, South Dakota. I went to work there as a messenger boy in 1904. That Company is not owned, and never has been owned, by the Bell Telephone System.

[fol. 6279] I first went to work for the American Company in 1911, as a junior engineer. Shortly thereafter I became toll rate engineer, and later on, toll traffic engineer, and finally, in 1922, I became commercial engineer. I left the Company in 1925 to go to the Southern Bell Telephone and Telegraph Company. I was elected Vice President in charge of operations of the Southern Bell Telephone and Telegraph Company and the Cumberland Telephone and Telegraph Company, January 1, 1925. The Cumberland Company went out of existence in 1926, but I was with the Southern Bell Company until May, 1930, at which time I became Assistant Vice President of the American Telephone and Telegraph Company.

During my connection with the American Telephone and Telegraph Company, I had experience in connection with the making of rates for telephone service, including those commonly called exchange rates, and those commonly called toll rates. In fact, most of my work with that Company from 1911 to 1925, had to do with rate and associated matters.

During that time I was familiar, and am now familiar, with the rates and rate practices of the American Telephone and Telegraph Company, and of the various Bell associated companies, including the Illinois Bell. During the time that I was in the commercial engineering division of the American Company, and during the time I was at the head of that division, I made studies with respect to the effect of various rate treatments upon telephone revenues, expenses, traffic, etc.

As I said, I was the commercial engineer of the American Telephone and Telegraph Company. The commercial division of the Department of Operation and Engineering of the American Company, studies, among other things, rates, rate practices, tariffs; it furnishes consulting advice to the associated companies along those lines, and also with respect to commercial practices. While commercial engi-

neer of the American Telephone and Telegraph Company, I frequently consulted with the various Bell associated companies, including the Illinois Bell, on rate and tariff questions.

[fol. 6280] As Operating Vice President of the Southern Bell Telephone and Telegraph Company, the rate making of that Company was under my direction. The Southern Bell Telephone Company does now, and it did during my connection with it, operate in 9 southern States. These States are: North and South Carolina, Alabama, Georgia, Florida, Tennessee, Kentucky, Mississippi and Louisiana.

I have studied and am familiar with the principles covering the making of rate schedules and the actual manner in which they have been made in the Bell System, including not only the American Telephone and Telegraph Company, but the associated Bell telephone companies. I am also familiar with the facts as to the historical development of telephone service by telephone companies generally in the United States, and as to how rates and rate practices applicable to exchange and toll service have been developed.

Originally, telephone service was furnished over lines permanently connecting a pair of telephones. These lines were essentially what we now think of as private lines. The telephones connected to these lines were ordinarily located in the home or business place of a customer, or the lines connected places of business of associated business enterprises.

At first there were no telephone exchanges as we now know them, but within a very short time exchanges were established to permit the inter-connection of the lines used by customers for telephone service.

Exchange service only was furnished by these early telephone exchanges. The rates for this early exchange service were usually flat monthly or annual rates, which entitled the subscribers to the exchange service to connection with any other telephone in the exchange.

At the beginning of the telephone industry, there were no inter-city or inter-exchange lines. The first inter-city lines were established, however, fairly shortly after the telephone business commenced. These inter-city lines and the exchange systems then existing were not connected in any way. In the beginning, the inter-city lines terminated

in telephones, or long distance offices, and anyone desiring [fol. 6281] to use them had to go to one of these offices and pay the rate for the use of the inter-city line, in accordance with whatever tariffs or rates were then established.

Shortly after inter-city lines began to be established, arrangements were developed for connecting them into the telephone exchange switchboards. This made it possible for the subscribers to the telephone exchange service to use these inter-city or long distance facilities without the necessity of going down to the long distance office to talk. In other words, they could talk from their own telephones.

It also happened that these inter-city lines were extended into small towns where no exchanges existed. In that case they were terminated in telephone instruments which were referred to, and have always been referred to since, as toll stations.

"Q. Now, how were the toll rates applied when someone desired to talk over these inter-city lines to one of these toll stations?"

Defendants object; overruled.

"A. A subscriber to a telephone exchange, to telephone exchange service, who desired to talk to a toll station in a distant town, paid a certain rate for that long distance message. Now, anyone who desired to talk in the reverse direction from the toll station in this given town back to the same exchange and to a subscriber in that exchange, paid exactly the same toll rate."

Telephone companies still have toll stations today.

In many cases, the demand arose for a more complete telephone service in many of the smaller towns which had previously been served by the toll stations only. In such cases, the telephone company canvassed the towns, secured lists of subscribers, and constructed exchanges.

"Q. What do you have to say as to the rate procedure which was followed in such cases?

"Mr. Haight: May it be understood, if your Honor please, that our objection made to this line of testimony may stand to the entire line?

"Judge Evans: It is only a background for the question [fol. 6282] of construction. It has no direct bearing, but it shows how the thing got started.

"Mr. Haight: Well, for that purpose, of course it is quite all right, but I did not want my objection to be waived to any evidence, on the ground that the objection had not been made.

"Mr. Thompson: I think it has, if the Court please, a very direct bearing, not only from the historical standpoint, but as to how these rate structures have been built up and developed, and what they cover today.

"Judge Evans: The testimony will be received. The objection will be noted as though it was taken to all of the testimony."

A schedule, or set of exchange rates, was established for this new exchange, and applied to all the subscribers secured. The toll rate between this exchange and other exchanges remained just as it was prior to the time when the exchange was constructed, and when the town was served only by a toll station. There was no difference in the amount paid for a toll message as between a person who was a subscriber to the exchange and one who was not.

My principal duty in the first job I had, was as a messenger for the purpose of notifying people that they were desired to answer telephone calls. It was my job to go and call people to the telephone when someone wanted to talk with them. A collateral job was when I would call the same man to the telephone several times. I would take a contract out to him and try to get him to subscribe to our service. When I succeeded in getting a man to subscribe to our service, he paid the exchange rates of this particular town (Aberdeen, South Dakota) and he paid the regular toll rate if he used the toll facilities. Those toll rates were exactly the same, as far as he was concerned, as what he had paid when he had had to walk down to the office and make his call.

The local exchange rate entitled the subscriber to connection with any telephone connected to the exchange, including connection with the long distance switchboard, the information operator, repair clerk and telephone company's business office.

[fol. 6283] This method of establishing rates has prevailed throughout the telephone industry down to the present time.

It has been the general practice of telephone companies throughout the United States to separate or classify the

telephone service into exchange service and toll service, and to charge separate rates for each class of service. When a subscriber pays his exchange rates, he is entitled to exchange service, which has always included the right or privilege of connection with the other telephones connected with the same exchange, including the right to call or be connected with the toll or long distance board, in order to send or receive toll and long distance messages which come over the toll facilities. When toll lines are connected with exchange lines, the subscriber who pays the toll rate for a given toll call is entitled to the use of toll facilities.

Usually in connection with a toll call, both exchange service and toll service are required. The patron pays for the use of the toll facilities by payment of the toll rate, and he pays for the exchange service that is required in connection with the toll call through payment of his exchange rates. This method of establishing rates has prevailed since the beginning of the telephone industry and prevails today.

The exchange rate covers every use made of the exchange telephone, just as it did at the beginning of the telephone industry. That has always been so in all of the telephone industries with the possible exception of New York where special conditions prevail with respect to the local toll service.

The purpose of a telephone exchange is to furnish all connections within the exchange area. When a connection is made with the toll systems, it is made within the exchange area by means of exchange facilities which are there for the purpose of affording all connections within that exchange area. The Bell System, and the associated companies, have built up their telephone service on this basis.

I have before me Supplement No. 2 to the May 1, 1917, issue of the Tariff and Route Book of the American Telephone and Telegraph Company, issued effective June 1, 1917. This contains the following:

[fol. 6284] "This Tariff and Route Book, together with the Rate Sheets described below and all Supplements as issued, constitute the American Telephone and Telegraph Company's tariff for telephone toll service.

"The service covered by this tariff consists in furnishing for the use of patrons facilities, other than exchange facilities, intended for use in telephonic communication between the points listed. The exchange facilities used in connec-

tion with this service are the facilities required to establish connection between an exchange station and the toll board, or between an exchange station and the toll trunks, when such trunks are employed to effect connection with the toll board, and the use of such facilities is covered by the charges for exchange service."

(Plaintiff offered a document identified as Plaintiff's Exhibit A-66 in evidence. This consisted of a certified copy of the first three sheets of the Tariff and Route Book of the American Telephone and Telegraph Company, filed with the Illinois Commerce Commission, effective August 1, 1917; the right to reserve objections was granted to the defendants by the Court.)

The same provisions hereinabove quoted are contained in the present tariff of the American Telephone and Telegraph Company.

There is a similar provision in the license contract of the American Telephone and Telegraph Company and the Illinois Bell Telephone Company, dated September 25, 1930.

(Defendants objected to an instrument identified as Plaintiff's Exhibit A-67, containing certified copies of certain tariffs filed by certain of the Bell associated companies with the Public Service Commissions of various States, as being immaterial. That exhibit was received in evidence for the limited purpose of corroborating or explaining the meaning of the term "exchange service.")

The instrument identified as Plaintiff's Exhibit A-68 contains certain filings made by companies not associated with the American Telephone and Telegraph Company with the [fol. 6285] Public Service Commissions shown in the particular filings.

(Plaintiff offered in evidence Exhibit A-68. Defendants objected thereto as being immaterial. Exhibit was admitted in evidence for the limited purpose of corroborating or explaining the meaning of the term "exchange service.")

The instrument identified as Plaintiff's Exhibit A-69, which bears on the outside of it the legend "Traffic Agreements with Connecting Companies", contains copies of agreements between certain Bell associated telephone companies and their connecting companies. The first contract included in this exhibit is that of the New York Telephone Company, currently in use, but I don't know how long it

has been in use. The second one, entitled "Exchange and Toll Line Agreement", has been in use in the State of Arkansas since 1921, as has likewise the third, entitled "Exchange Agreement". The fourth contract, which bears the inscription "Form S-8615 a-T", has been used in the State of Texas since 1923, as has likewise the next contract. The last contract in the exhibit is one between the Michigan Company and one of its associated companies. I am not sure how long it has been used, but this is a copy of a contract which has actually been executed and it bears the date of November, 1924.

(Plaintiff offered in evidence Exhibit A-69. Defendants objected on the ground that it was immaterial. It was received in evidence for the limited purpose of corroborating or explaining the meaning of the term "exchange service.")

I have made studies to determine what percentage of the exchange subscribers use the toll service of a given company. During the time I was associated with the Southern Bell Company, the General Auditor of that Company used to furnish me with current statistics on that subject.

"Q. Will you state just generally what that usage is?"

(Defendants objected on the ground of immateriality. Objection overruled.)

These studies indicated that during any one month, from 50 to 60 per cent of all subscribers to a given exchange make use of the toll service in originating toll and long distance [fol. 6286] business. While I have never made any such studies myself, I have seen data showing the use that subscribers make of this toll service during a year, and that runs considerably higher. The studies that I have seen indicate this use would run from perhaps 85 to 90 per cent of all subscribers. This is based on originating calls, and has no reference to the amount of toll traffic received.

(Defendants moved to strike out entire answer and the reference to "studies I have seen." Motion was denied.)

"Q. Do the exchange rates of the Illinois Bell Telephone Company give to subscribers for exchange service, the privilege of connection with the toll system as a part of the exchange service paid for in the exchange rates?

"Mr. Haight: I object to that. The schedules speak for themselves. There is no other vocalization to be had on

that question. This witness' opinion or judgment or statement is not only immaterial, it is utterly uncalled for.

"Judge Evans: I haven't any objection to the answer. To me it is self-evident. But I assume his answer is yes.

"Q. What is your answer?

"A. Yes."

Cross-examination.

By Mr. Goldstein:

As toll rate engineer of the American Company, my principal duty was to study the experience of the Bell System, on the various systems of toll rates as they applied throughout the country; to investigate the advantages and disadvantages of various kinds of schedules; to put myself in a position to be able to estimate revenues under various toll schedules; to furnish consulting advice with respect to toll rate matters to the associated Bell telephone companies; and to give the associated companies such services as they requested in connection with such matters. As commercial engineer I had those same duties, which were performed under my direction. I also had the responsibility for exchange rate matters and for commercial practices—and by that I mean, the collection practices, billing practices, management of telephone business offices, telephone directory matters, connecting company arrangements as far as they [fol. 6287] went into the commercial phases of the business; and there again my duty was to study these matters, and put myself in a position to render consulting service to the associated companies, and I did render consulting service on these matters.

To acquire the information as to the manner in which rates were established, and the manner in which they should be established, I started from what was actually the practice of the various associated companies. I ascertained the practices of the companies in various ways, by going out and talking with them, by correspondence, or by their coming in to see me. I found out what the practice of all the companies was at the time I was working on that job. I secured substantial quantities of data from the associated companies which would permit me to determine the effect of various types of rate schedules on traffic, for example. I have had the data that were in the possession of the Amer-

ican Telephone and Telegraph Company as to how the rates were established. That is historical.

My first information, with respect to toll rates, was secured along about 1913, if I remember correctly. At that time my superior, who was then the Commercial Engineer, called a conference of the officers of the various Bell telephone companies at which we discussed for several days the toll rate schedules. Included in this discussion were questions of how these schedules were established and whether they were effectively meeting the requirements of the existing situation. I attended this conference and learned a great deal from these discussions.

I think I have seen contracts between the American Telephone and Telegraph Company, or its predecessor, the American Bell Telephone Company, and the exchange licensees, or with the licensees covering extra-territorial service. I assume that those contracts are in the possession of the American Telephone and Telegraph Company. I do not think I ever asked the Secretary of the American Company to provide me with any specific contract of that na-
[fol. 6288] ture. In visiting the associated companies, I have seen their end of the same contracts from time to time.

I am not sure that any of these contracts make provisions for the basis upon which exchange rates or toll rates should be established; I would have to examine the contract to determine that. Undoubtedly, these contracts contained provisions which had a bearing upon the effect in the establishment of exchange rates and toll rates. These contracts provided, among other things (at least the ones I have seen did), for an inter-connection between the toll lines owned by the American Bell or the American Telephone and Telegraph Company and the exchange system of the other companies. I assume that in these contracts are provisions relating to the compensation from the toll line company to the exchange company for certain services which the exchange company performs for the toll line company, which services are in the nature of toll service which the toll line company is hiring some one else to do for it. I am sure that is the case from the several I have seen.

If there is a connection contemplated under the exchange contracts, there certainly would be some terms under which such a connection would be made, but I do not know.

I believe I have a copy of the license contract of the Illinois Bell Telephone Company, and I am familiar with it to

a certain extent; the contract to which I am referring is the one dated September 25, 1930. I am also familiar with the memorandum of agreement between the American Company and the Chicago Company, dated February, 1919.

I have seen contracts between the Chicago Telephone Company and the American Telephone and Telegraph Company dated prior to 1919, but I do not know that I am familiar with all the terms. I probably have seen copies of the forms of contracts used by all of those companies of the Bell System whose tariff provisions as to toll service are described in the Exhibit A-67. I, of course, cannot carry in mind just exactly what those contracts state. I probably have seen most of the contract forms used in pro- [fol. 6289] viding for inter-connection between the systems of independent telephone companies and the companies referred to in Plaintiff's Exhibit A-69.

I am sure I have seen the license contract between the American Company and the Southwestern Company. I don't know whether I have ever seen the contract between the American Company and the Michigan Bell Telephone Company, but I am quite sure I have seen the contract between the American Company and the New York Telephone Company.

I am not familiar with the forms of exchange and toll license contracts between each of the companies whose tariffs are described in Exhibit A-67, and the American Bell Telephone Company, or the American Telephone and Telegraph Company. I am, however, familiar with the license contract between the American Telephone and Telegraph Company and the Southern Bell Telephone and Telegraph Company.

It is hard for me to say whether or not the contracts with which I am familiar are the current contracts now existing, or contracts which are superseded by the present contracts. From time to time in the last twenty years, I have had occasion to consult these contracts. During the last seven years I have only been with the American Telephone and Telegraph Company a little over a year and a half, and whether new contracts have been written since I have seen the old ones, or not, I am not sure. I do know about the Southern Bell, however.

In a general way I am familiar with the form of contract that has existed between the Southwestern Bell Telephone Company and the American Bell.

Forms of contract between the Southwestern Bell and the American Bell Telephone Company which have been reproduced as Defendants' Deposition Exhibit 192, and are shown in the record of the so-called Houston Case, appearing in 259 U. S. 318, being forms 109-D, 113-D and 116-C, are not the forms of contract with which I am familiar. The contract that I referred to as being more or less [fol. 6290] familiar with, is a contract executed some time around 1925 or 1926. I do not know the exact date, but I was negotiating a similar contract on behalf of the Southern Bell with the American Company, and I looked at the terms of a recently executed contract of the Southwestern Bell in connection with my own negotiations. I am not familiar with the provisions of the contract which existed between the Southwestern Bell and the American Company prior to 1925.

In my experience, the American Company did not have a form of contract for exchanges, but made a contract with the associated Bell companies that covered both exchanges and toll lines, and which provides for the inter-connection of the whole system. There was no specific contract with reference to exchanges.

I am not familiar with the form of contract known as Form 109-D, entitled "Contract for Exchanges."

I do not believe I have ever seen the contract Form 109-D between the American Bell and the Southwestern Telegraph and Telephone Company, dated July 27, 1889, and appearing as part of Defendants' Deposition Exhibit 192. I cannot say that I have ever seen the form of contract known as Form 113-D, entitled "Contract for Extra-territorial Connecting Lines." I have seen similar contracts, but whether they were contract Form 113-D or not, I do not know. I do not know whether or not this Form 113-D was used with any company other than the Southwestern Bell. I have never seen a contract containing the same terms as Form 109-D. I do not know that I could even say that I had seen a contract with substantially the same terms. I do not believe that I have seen exactly or substantially the same phraseology contained in Sections 7, 8 and 9 of that form of contract (Form 109-D).

Over a period of years ending in 1925, I have been consulted on numerous occasions by representatives of the

Illinois Bell Telephone Company with reference to the making of rates for telephone service, including those commonly called exchange rates. These consultations go back probably to 1912 or 1913, and had reference to a good many things; [fol. 6291] it is hard to state the nature of the subject matter. With reference to exchange rates, the subject would have to do with service connection charges, the effect of various types of message rate schedules, coin box schedules, and so forth.

I think I have seen the contract dated November 10, 1879, between the Western Union Telegraph Company and the National Bell Telephone Company, which appears in Vol. VI, page 1887, of the Supreme Court printed record of this case as City's Exhibit 22. I am not familiar with it. It is a long contract and I think I have seen it, but I do not know all of those terms. I do not know that I have read it all through but I have read parts of it. That contract, as I remember it, was largely the granting of licenses under patents.

The contracts had to do with the granting of licenses for the use of telephone instruments, because the patents were still running at that time. I understand from my rather cursory examination of the contract that the Bell Telephone Company was to construct an exchange in Chicago.

I am not familiar with the contract shown as City's Exhibit 22, dated November 10, 1879, between the Western Union Telegraph Company for itself and for the Gold & Stock Telegraph Company, the American Speaking Telephone Company, and the Harmonic Telegraph Company, as parties of the first part, and the National Bell Telephone Company, as party of the second part. I have never read that contract. I have seen the contract dated December 23, 1881, between the American Bell Telephone Company and the Chicago Telephone Company, which appears as City's Exhibit 23, in Vol. VI., page 1925, of the Supreme Court printed record, but I would not say that I am familiar with it. It is a matter that I would have to study at considerable length before I could claim familiarity with it. I have read that provision of that contract appearing in Section 2, on page 1925 of the Supreme Court printed record, which reads as follows:

"The Licensor [being the American Bell Telephone Company] hereby grants and licenses to the party of the second

[fol. 6292] part [being the Chicago Telephone Company] the full and exclusive right within and for all of the territory hereinafter defined, to use, and to license others to use, for all purposes for which the Licensor has or shall have the right to use them (except so far as the party of the first part to the contract of November 10, 1879, between the National Bell Telephone Company/the predecessor of the American Bell Telephone Company/of the one part and the Western Union Telegraph Company for itself and associates of the other part, may have a right under Article 14 of said contract to acquire from the Licensor telephones for transmitting telegraph messages and for use in private lines with the right to sub-let the use thereof along with such private lines, and except as hereinafter provided) telephones furnished by the party of the first part, embodying any invention in or relating to telephones or their use which the party of the first part now has or shall have the right to use, either under any Letters-Patent which it now owns or may hereafter acquire, or under any license or other grant or right which it has acquired or may hereafter acquire under or by virtue of the contract of November 10, 1879, or otherwise, including such full and exclusive right as aforesaid to use such telephones on exchanges as defined in said contract last named."

I take it that that is a patent license. It has all of the terms that are usually included in a patent license. I am not familiar with the scope of the license granted by Section 2, because it refers back to a prior contract with which I am not familiar. I have seen Section 10 of the same contract as it appears in the Supreme Court printed record at page 1929, which reads as follows:

"In case the Licensor, its successors, or grantees shall desire to connect points within said territory, with points outside of said territory they shall have the right to connect with or avail themselves of the lines and facilities of the party of the second part or its Licensee, owners of exchanges of public lines making a reasonable and suitable [fol. 6293] division of the tolls and profits of such extra-territorial and through business; and if or so far as said Licensee or its sub-licensees shall not have or shall not furnish suitable lines and facilities then said American Bell Telephone Company may within said territory con-

struct such lines and use such telephones as may be necessary for such purposes."

The contract of July 1, 1891, between the American Telephone and Telegraph Company and the Chicago Telephone Company, appearing in Vol. VI., page 1934, of the Supreme Court printed record, being City's Exhibit 24, appears to be a contract for services. It is rather special in its nature, and I am not familiar with it. It is not the type of general contract.

I have never seen the letter dated January 7, 1896, appearing on page 1938 of the Supreme Court printed record, being City's Exhibit 25, nor the letter dated January 15, 1896, appearing on page 1939 of the Supreme Court printed record as City's Exhibit 26.

I have never seen the letter of the American Telephone and Telegraph Company of June 14, 1899, appearing on page 1940 of the Supreme Court printed record, being City's Exhibit 27, nor the calculation reproduced on page 1940 of the Supreme Court printed record as City's Exhibit 27-A. I have never seen the document reproduced as City's Exhibit 28, on page 1941 of the Supreme Court printed record, entitled "Simplifying Accounts"; nor the letter dated May 11, 1909, from the American Telephone and Telegraph Company to the Chicago Telephone Company, appearing on the same page as City's Exhibit 29.

I take it that all these letters had to do with the administration of prior contracts, and are quite usual. I would not have had any opportunity of seeing them unless I particularly looked them up; I have never seen them.

I have never seen the document reproduced as City's Exhibit 30, on page 1942 of the Supreme Court printed record; nor City's Exhibit 31, on page 1943 of the record. With the possible exception of Mr. Thayer's letter to Mr. Sunny [fol. 6294] of May 28, 1920, being City's Exhibit 40, appearing on page 1977 of the record, which I may have seen as I was closely associated with Mr. Thayer's office, I have not seen the documents appearing on pages 1971, 1972, 1976, 1978 and 1979 of the record.

I have seen the ordinances of the City of Chicago under which the Chicago Telephone Company or the Illinois Bell Telephone Company has been operating during its existence. Specifically, I have seen an ordinance dated about 1881, the ordinance of 1907 and the ordinance of July, 1931.

I think that when I referred to the ordinance of 1881, I had in mind the ordinance authorizing the Chicago Telephone Company to construct, maintain and operate lines of telephone wires, passed January 4, 1889, and accepted January 10, 1889. I think 1889 is the date (which said ordinance was marked for identification as Defendants' Exhibit D-15). I have seen the 1907 ordinance (which was thereupon marked for identification as Defendants' Exhibit D-16). I have seen the ordinance of 1931 (which was marked for identification as Defendants' Exhibit D-17).

I do not know that the Chicago Telephone Company made any attempt to have the exchange rates in Chicago cover the use of local exchange property in long distance service, beginning with 1893. My conclusion is that they always did it that way. I am not familiar with any litigation concerning this question, but I think the Chicago Telephone Company included, as one of the things which the subscriber who paid exchange rates was entitled to, the use of the exchange plant for reaching toll facilities in making toll and long distance calls. The exchange rates of the Illinois Bell Telephone Company and its predecessor companies, as far back as I have knowledge of them, entitled anyone who paid those rates to communication with all telephones in the City of Chicago, and also entitled the subscriber to the use of those lines in getting access to the toll facilities, both of the Illinois Bell Telephone Company and of those other companies with which it had made contracts for the benefit of its customers.

[fol. 6295] I have been in the telephone business since 1904. When I was in college, between 1907 and 1911, I frequently came to Chicago. At those times I made use of the telephones in Chicago and thereby gained my knowledge that at that time that is the way the service was charged for. My knowledge of the Chicago Telephone Company starts, therefore, from the period between 1907 and 1911.

I have drawn conclusions of the practice prior to 1907 from my examination of the contracts of the Illinois Bell that I have had access to. I have seen a good many old contracts that the Illinois Bell Telephone Company made at different times with different customers, and I saw nothing in those contracts inconsistent with my conclusions. It is impossible for me to identify those contracts. I have seen

contracts describing the Company's practice. I have seen probably 100 or more forms of contracts between the Illinois Bell Telephone Company and its exchange subscribers in Chicago. I saw these contracts recently, but they were ones executed prior to 1907. It is from these contracts and other things that I have derived my information on this subject.

I could hardly be in the telephone business and know the Illinois Bell people as I have known them for almost twenty years, without gaining a very definite impression upon which to base a conclusion as to what they did. I have talked with them and consulted with them from time to time. I have looked into their rate practices and examined their contracts. I have looked at their tariffs. I did not look at their tariffs prior to 1907, nor did I have any discussions with them with reference to their practices prior to 1907. In my experience in the telephone business, I have acquired a general knowledge of how the business grew up, and I have been able to reach conclusions which I think are reasonable; any man could have reached the same conclusions who has had the same experience I have had.

I have assumed that the practice in Chicago was similar to the practice which I knew prevailed throughout the telephone industry, although I formed a conclusion based on [fol. 6296] various items of information which I have seen and which I have acquired from time to time in the course of my life.

I never heard of a court order requiring the Chicago Telephone Company to refund to local exchange subscribers a portion of the charges which it had made them for local plant in long distance service. I am not sure that I ever heard of the Chicago Telephone Company making any refunds at any time. A number of Bell companies, in connection with rate litigation, have had to impound money and subsequently refund it, but I am not sure about the Chicago Company. I never heard of the Chicago Telephone Company refunding money prior to 1907.

I think I have seen the ordinance of 1913, under which the Chicago Telephone Company operated, which has been identified as Defendants' Exhibit D-18.

I knew the Central Union Telephone Company and some of its officers. I visited this Company and consulted with its officers, and they visited me in New York and consulted

with me, and I corresponded with them. I would not be able to give its corporate history, or the dates on which various incidents happened in connection with its corporate history. I do not believe that I am familiar with its license contract with the American Bell Telephone Company or the American Telephone and Telegraph Company. Most of my experience with the Central Union Telephone Company was while it was in receivership. I knew the receivers. I do not know whether the Central Union Telephone Company had a license contract between it and the American Company on Form 109-D, nor do I know whether it had for extra-territorial business a contract Form 113-D. I am not sure whether it had Form 116-C for private lines. It undoubtedly had a contract with the American Telephone and Telegraph Company, but I do not know what contract, nor what form it had.

The Tariff and Route Book, which has been identified as Plaintiff's Exhibit A-66, from its nature would enable any person who had the rate schedules and rate charts [fol. 6297] before him to determine the rates from any point served by the Illinois Bell Telephone Company and its connections in Illinois to any other points in Illinois, or outside of Illinois. It relates to the rates of the American Telephone and Telegraph Company, and covers points "reached via the lines of the American Telephone and Telegraph Company and its connections." If the 100-mile contract of the Central Union Telephone Company was in effect during the time of this tariff, it would relate to those rates. There is no reference in this tariff to any contract. I recognize what is meant by the 100-mile contract, but I have never seen it; I do not know whether it is in the possession of the American Telephone and Telegraph Company, but if it is a contract signed by the American Telephone and Telegraph Company, I assume they have kept a copy of it. If the contract is in the files of the American Company, I will let counsel for the City see it.

In a general way, I am familiar with the rate schedules for exchange service filed by the Illinois Bell Telephone Company, covering exchange service in the City of Chicago, from 1893 to date. I have examined those rate schedules.

I should think that the sheets from the rate schedules of Illinois independent telephone companies, which are listed in the first portion of Plaintiff's Exhibit A-68, are part of

exchange schedules and not of toll schedules. Some of these companies, with which I am familiar in a general way, have no toll lines.

There is no paragraph in the tariff of the Illinois Bell for its Chicago exchange defining local exchange rates in the same language as that contained in each of the schedule sheets which are reproduced in Exhibit A-68, as follows:

"The local exchange rates herein shown are for local exchange service which includes service and connection with the toll boards having connected thereto the toll lines which connect with the * * * local exchange."

There is a statement in the schedule covering the exchange service in the City of Chicago, as follows:

"Subscribers to Chicago Exchange System service may, [fol. 6298] on the terms of their contracts, transmit local messages to all exchange telephones located within the limits of the City of Chicago.

"A local message is a communication not exceeding five minutes' duration between subscribers' stations within the same exchange limits. By ordinance of the City of Chicago and these regulations the subscriber, lessee or patron is forbidden to charge any person more than five cents for a single message transmitted to any point within the City of Chicago from any telephone furnished under the contract of which these regulations are a part."

That statement in the regulations appearing in the Chicago exchange tariff is not in any sense a complete definition of exchange service.

There is nothing in the regulations in these schedules that says that the subscriber will get a telephone. It is implied by saying that he must take care of the telephone. I think you would have to read the entire tariff to determine what kind of service an exchange subscriber is entitled to. I think that all of the tariffs of the Illinois Bell Company should be taken as a whole for the City of Chicago and for the service which people can get from Chicago; by that I mean the toll tariff and exchange tariff together, and all other tariffs. I think that the generally accepted custom and usage of the business go to show what the Telephone Company meant when it was talking about exchange service.

There is no definition of exchange service, in so many words, in any one place in the exchange tariff, which completely defines exchange service, in my judgment. There is nothing in the tariff that says that the subscriber is entitled to a directory listing, and yet that is one of the things he is entitled to. A provision similar to that shown in Exhibit A-68, providipg that the exchange rates cover access to the toll board, is contained in the tariff of the Illinois Bell Telephone Company for toll service, and is implied in the exchange schedules. It is not stated explicitly in the exchange schedules, but I draw the conclusion from them that the service includes facts in line with that definition. [fol. 6299] There is included in the exchange tariff a statement of the rates for long distance terminals, that says:

"For long distance and toll use only; terminates in long distance switchboard; including mileage charge, measured by the most direct street distance, from the Exchange through which subscriber's line is operated to Toll center, 111 N. Franklin Street, for first one-half mile or less, $4.50; for each additional quarter mile or fraction, $1.25."

There is an exchange rate which provides for the use of facilities that cannot be used except for communication with the toll board. The revenues from the application of that rate are exchange revenues. That toll terminal does nothing more or less than furnish access to the toll board; that is the only thing it can be used for.

That is one of the things that leads me to the conclusion that the local exchange rates include access to the toll board. The words "exchange service" and "exchange rates" have a definite meaning; they have grown up in the business to have a definite meaning, and there is no doubt on the part of such telephone men as I know (and I know a great many of them, both in the Bell and independent field) about what is meant. In my experience with our customers, there has never been any doubt on their part as to what was meant.

After reading the tariff of the Illinois Bell Telephone Company, I am satisfied that I know what is meant by exchange service, and that it includes the right of access to the toll and long distance boards upon payment of the exchange rates. There is no very specific language; there is no language as specific as that contained in the toll tariff of the Illinois Bell Telephone Company. Continuously throughout the tariff appears the word "exchange" and

the words "exchange service" and "coin box service," and reference to measured rate service, and all of these services have that meaning to me. I do not know whether the sheets superseded by Sheet 1, Ill. C. C. No. 2, Section 1, shown on page 1 of Exhibit A-68, referring to Versailles, Illinois, contain language identical to that contained in the first of the two quoted paragraphs.

[fol. 6300] When I was reading before from the Chicago exchange schedule, I was reading from the one now in effect. I was reading from a sheet of the Illinois Bell Telephone Company tariff for its Chicago exchange, headed "I. P. U. C. No. 1, First Revised Sheet No. 5, Canceling Original," issued December 27, 1920, effective January 1, 1921, filed by A. R. Bone. Mr. Bone at that time was General Commercial Superintendent of the Company.

I assume that if the companies in the State of Illinois have toll properties, they would file tariffs covering their use, and if they had none, they would only file exchange tariffs. I do not know whether all of them or some of them, or how many of them have toll lines, but I think it would be found that a great many of them have no toll property.

From the language in the sheets from the State of Indiana, appearing in the same exhibit (A-68), I am unable to go behind the certificate as to whether or not the tariff covered by the certificate is a toll tariff or an exchange tariff. I do not know. The words "The local exchange rates herein shown "indicate that they are used in connection with an exchange tariff.

I have in mind, however, that I have seen independent companies make one filing for both exchange and toll service, but I do not know whether there is a separation between the two or not. I would assume from the language that it would be a part of an exchange tariff. There is one toll tariff in here, and that is the tariff of The Tri-State Telephone and Telegraph Company, in the State of Minnesota, that specifically states it is a toll tariff, but it is the only one, I believe, that does state that. I do not know the definition of "local exchange service," contained in the local exchange tariff existing at the same time and in the same community covered by the tariff that is reproduced in Exhibit A-68 in the case of The Tri-State Telephone and Telegraph Company of Minnesota.

I am familiar with the definition of "station-to-station toll service" which was contained in the Illinois Bell Tele-

phone Company's toll rate schedules for toll rate service prior to 1925. That definition, as filed in 1920, was: "a [fol. 6301] connection between any two telephones (including private branch exchange switchboard operator), and does not contemplate the establishment of conversations between particular individuals."

The companies whose sheets are reproduced in Exhibit A-67 would have to define station-to-station toll service in some way or other if they filed a toll tariff since 1919, when that particular classification of toll service was established by order of the Postmaster General. I do not know whether their schedules contain a definition of station-to-station toll service similar to the one in the Chicago Telephone Company's schedule. They would undoubtedly have to define what they meant by station-to-station toll service, however, but I do not know how they defined it.

The license contract of September 25, 1930, does not cover all of the arrangements between the Illinois Bell Telephone Company and the A. T. & T. for the use of the Chicago facilities for long distance service in the City of Chicago.

I do not believe that any of the studies to determine the percentage of exchange subscribers who use the toll service of a given company (about which I testified on direct) related to the business of the Illinois Bell Telephone Company in the City of Chicago. I have made such studies in Denver and in cities in the northwest, of which I think Minneapolis is one, and perhaps Omaha another; I have secured information concerning cities in the south on that point a number of times. The dates of these studies would be in the period from, say, 1914 to 1925, or some place in there.

Subsequent to the tariff of the American Telephone and Telegraph Company filed in 1917, to which I have referred, there was a filing of that Company on November 1, 1919, and another issued on March 1, 1924. Shortly after that time, the American Company withdrew from intrastate business in Illinois, and ceased to make filings with the Illinois Commission, I believe. These filings refer to all business of the American Telephone and Telegraph Company, both intrastate and interstate. Prior to 1925, the American Company carried on an intrastate business in [fols. 6302-6316] Illinois as well as an interstate service. They withdrew from that intrastate service some time around 1925, and at that time I assume that they withdrew

their filings, or their filings ceased to have any significance as to intrastate business in Illinois.

Redirect examination.

By Mr. Thompson:

Some reference was made in my cross-examination to a toll schedule showing the station-to-station toll rate. That sort of service was first established about 1919. Prior to that time, a number of companies gave what they called a two-number service, the distinction between that and the usual toll service being that, in the two-number service, the company did not undertake to secure the presence at a distant telephone of a specific individual. This service was also called "A-Y service", "A-Y" being our abbreviation of "Anyone". In 1919, when the Postmaster General established the so-called P-M-G schedules of toll rates, he referred to these particular classes of calls as station-to-station. The denotation of those words was that the telephone companies did not attempt to get the distant telephone the presence of a specific individual. It was to distinguish between another class of rates, called person-to-person rates, where we undertook to secure the presence at a telephone of a particular person. There was a difference in the rates; one was cheaper than the other.

When the designation "station-to-station" was first used, it was necessary for the companies having toll schedules not only to put into effect their rates for the station-to-station service, which were different from their person-to-person rates, but also to define the term "station-to-station" in their toll tariffs.

Recross-examination.

By Mr. Goldstein:

There was no service called "station-to-station service" prior to the time of the Postmaster General's order, which, I believe, was issued in January, 1919. I was in France at the time, and I do not remember the exact date, but it was about that time.

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[fol. 6317] Richard H. Gregory, called as a witness on behalf of the plaintiff, having been first duly sworn, testified as follows:

Direct examination.

By Mr. Thompson:

My name is Richard H. Gregory. I live in Montclair, New Jersey. I am Comptroller of the Western Electric Company, and have been for 23 years.

Shortly after graduation from college, I entered the employ of the Western Electric Company (on August 1, 1898) in a clerical capacity. In December of that year, I became Assistant Chief Clerk of the New York house. In 1900, I was transferred to Chicago, to the Secretary's Department, and in 1902 I was transferred back to New York as the representative of the Secretary. In 1905, I was made Assistant Secretary of the Company, and transferred to Chicago, where the headquarters of the Company were at that time. I remained in Chicago until October, 1908, when I was transferred to New York and appointed Comptroller of the Company, which position I have held since.

As Comptroller, I am the Chief Accounting Officer of the Company, and have charge of the preparation of the balance sheets and profit and loss statements. All of the accounting records are under my supervision and control.

The manufacturing plants now owned and operated by the Western Electric Company are: the Hawthorne plant located at Chicago, Illinois; the Kearny plant located near Kearny, New Jersey; the Point Breeze plant at Baltimore, Maryland; and the Queensboro plant located on Long Island. Only the Hawthorne plant has been operating continuously since 1916. The Kearny plant was constructed prior to 1925, and commenced operations in 1925. The Point Breeze plant was constructed and began operations in 1929. The Queensboro plant was acquired in 1929.

The dollar sales of goods manufactured by the Western Electric for the period 1916 to 1931 amounted to nearly $2,400,000,000. The lowest year was in 1916, when the sales amounted to $46,500,000, and the highest, in 1929, [fol. 6318] was $278,000,000. During that same period of time, 1916 to 1931, raw materials and supplies amounting to $700,000,000 were purchased from others and used by the Western Electric Company in its manufacturing business; the lowest year was in 1919, and amounted to $17,000,000; the highest was in 1929, and amounted to $103,000,000. During the same period of time, the lowest annual payroll of the Western Electric Company for its productive labor

was in 1916, and amounted to $10,000,000; the highest was in 1929, and amounted to $78,000,000.

The Western Electric Company operates distributing houses from which its manufactured goods and supplies are distributed to its customers; there are, at the present time, 32 such distributing houses located in the principal cities throughout the United States. There has been a gradual growth in the business done by these distributing houses from 1916 up to the present time. These distributing houses carry stocks of Western Electric manufacturers, and of supplies purchased from others for resale to the Bell associated companies. They also receive goods returned by the Bell associated companies for reconditioning or re-use. All goods sold to the Bell associated companies, whether they are delivered directly from the factories, or through the distributing houses, are invoiced through the distributing houses.

The Western Electric Company also has an organization for the installation of central office telephone equipment. The headquarters of the Installation Department are in New York, and it has 13 branches throughout the principal cities of the United States.

During the period 1916 to 1931, the lowest number of employees of the Western Electric Company was 17,000 in 1916; and the highest number was 85,300 in January 1930. At the end of 1931, there were 44,600.

The executive offices of the Western Electric Company, including its Accounting Department, are located at 195 Broadway, New York City.

In 1916 there were approximately 1,000 employees in the Accounting Department, of which I am the head. This number gradually increased until the middle of 1930, to [fol. 6319] 5,000. At the present time there are approximately 3,300. These accounting employees are located at the Company's headquarters, at 195 Broadway, and at each of the manufacturing plants of the Company, and at the installation divisions and distributing houses to which I have referred. As of July 1, 1930, such accounting employees were divided among its several activities as follows: at manufacturing locations there were approximately 3,500; at distributing houses, 550; at installation divisions, 350; and at the general staff at New York, 430. The annual payroll of the Accounting Department as of July 1, 1930, was $8,500,000.

The chart which has been identified as Plaintiff's Exhibit A-70 shows the accounting organization of the Western Electric Company as of December 31, 1931.

During the years 1916 to 1931, the Western Electric Company has kept more than one set of ledgers, journals and cash books.

The Company cash books, ledgers and journals have been kept at the executive headquarters at 195 [illegible]oadway, New York. The subsidiary ledgers, journals and cash books have been kept at the various manufacturing departments, installation divisions, and distributing houses to which I have referred.

These general company ledgers, which are kept at the executive offices of the Company, and the subsidiary records, which are kept at the various other points, are kept in accordance with accounting routine and instructions issued from time to time by the Comptroller's office. These routines prescribe the principles of accounting for action by all departments of the Company, and for insuring accuracy and uniformity in the results which we receive from those various departments.

I have in the court room the general accounting instructions of the Western Electric Company which are now in force. They consist of three books, aggregating over 1,300 pages. They include over 125 accounting subjects and cover all phases of the accounting of the Company.

During all of the period from 1916 to 1931, there has been maintained in the general accounting organization at New [fol. 6320] York an auditing division, whose duties have been to audit the subsidiary records of all of the distributing houses, manufacturing department locations, and installation divisions. That has been done continuously since 1916, and even prior to that time. Also, since 1922, certified public accountants have audited our books, certifying to the accuracy of the balance sheets and income statements. During the years 1922 to 1925, inclusive, our books were audited by Price, Waterhouse & Company; for the year 1926, by Lybrandt, Ross Brothers & Montgomery; and from 1927 to the present time, by Arthur Young & Company. These audits are made for the purpose of insuring certification to our stockholders of the accuracy of our balance sheets and profit statements, and also for the purpose of ascertaining whether the accounting practices and routines prescribed by the Company have been followed in the ac-

counting of the Company. We also have prescribed routines and instructions for making audits by our own employees.

The accounting books maintained by the Company at its executive offices at 195 Broadway, that I have described as the general accounting books of the Company, consist of journals, ledgers and cash books. There are 5 ledgers, 16 journals and 29 cash books, covering the period 1916 to 1931. All of them are now in the court room.

Entries in the Company ledgers are made at the present time by the Company bookkeeper, and in the journals and cash books, by several different people. The people who make these entries change from time to time. None of the employees of the Western Electric Company who have worked on the general books are now residents of or within the State of Illinois. No one person has knowledge of all of the facts with respect to the entries in the cash books, journals and ledgers.

The entries which appear in the general Company books are made in accordance with our general accounting routines and subject to audit, as I have previously testified. These entries are made regularly and currently in the ordinary course of business by employees of the Company [fol. 6321] entrusted with that work. In my opinion, such entries are accurately and correctly made.

It would not be possible to produce in Court all of the persons who have personal knowledge of all of the facts with respect to all of the entries made in the general ledgers, journals and cash books of the Western Electric Company during the years 1916 to 1931. Some of these persons are dead; some have left the employ of the Company; and thousands of them are scattered throughout the various localities of the country where we have distributing houses, installation divisions, and manufacturing department locations.

The subsidiary records which I have said are kept by the Western Electric Company at its various manufacturing plants, installation divisions and distributing houses, consist of ledgers, journals and cash books. The instrument identified as Plaintiff's Exhibit A-71 shows the volume of these records, to which I have referred as the subsidiary records of the Company. This Exhibit A-71 correctly sets forth the ledgers, journals and cash books of the Western Electric Company, which I have termed subsidiary records,

the places at which they are maintained, the number of such records, and the number of pages of such records. In total, there are 1,258 of these records, consisting of more than 525,000 pages.

In the business of the Western Electric Company at its various manufacturing plants, distributing houses, and installation divisions, during the period of time inquired about, the Accounting Department handled vouchers, cost records, invoices, and the like. In recent years, the raw material tickets handled at our Hawthorne and Kearny plants alone have totaled over 3,000,000 annually. The number of items billed by our distributing houses in recent years has amounted to more than 10,000,000 annually. The labor tickets at our Hawthorne and Kearny plants, distributing houses, and installation divisions have amounted to more than 10,000,000 annually in recent years. The payroll checks issued have averaged over 3,000,000 in each of the last 3 years; that is, 1929, 1930 and 1931. Invoices from suppliers have amounted to more than 1,000,000 annually. All of these matters to which I have referred enter into and form a part of the accounting involved in the Western Electric Company.

The instrument identified as Plaintiff's Exhibit A-72 [fol. 6322] shows the general instructions issued by the Western Electric Company providing for the preservation of certain records, memoranda, checks, invoices and other papers. This Exhibit A-72 is dated January 23, 1931, and replaced an issue of September 6, 1928. Generally speaking, the subject matter of the instructions which were replaced by this issue was practically the same as the subject matter of these instructions. The records which are referred to in Exhibit A-72 are preserved only for a definite period of years, and some of them are destroyed after the expiration of that period of years. None of them, however, are destroyed prior to the dates that are stated in these general instructions.

Under the accounting system of the Western Electric Company, reports are made to me from time to time as Comptroller by the accounting officers in charge of the records and accounting at the various manufacturing plants, distributing houses, and installation divisions of the Company. I, as Comptroller of the Company, also make reports

from time to time to the executive officers of the Company and to the stockholders, based on the general accounting records of the Company and the reports made to me from the manufacturing plants, distributing houses and installation divisions. Some of these reports which are made to me, and by me, are issued monthly, some quarterly, some semi-annually, and some annually. In addition to the balance sheets and profit and loss statements, these reports cover such items as sales, gross profits, expenses, net profits, merchandise, plant, receivables, cash, payables, personnel, and other items. These reports are a part of the records of the Western Electric Company, and are made currently in the regular course of its business by employees of the Accounting Department of that Company for the use of its officers and executives. These reports are audited by the Auditing Department of the Company. They contain, among other things, in summary form, the information which appears upon the subsidiary cash books, journals and ledgers kept and maintained at the various manufacturing plants, installation divisions, and distributing houses of the Company.

The general Company ledgers are made up from the general Company cash books and journals. A part of the information and data appearing on the general Company journals is made up from the reports to which I have referred. I have in Court at this time, not only the general [fol. 6323] Company ledgers, journals and cash books for the entire period 1916 to 1931, but also all of the annual reports for the same period of time. Some of these reports were used by me in the preparation of the four exhibits identified as Plaintiff's Exhibits A-77, A-78, A-79 and A-80. These reports are bound together in volumes.

I also have in Court, my work sheets and other information used by me in the preparation of these Exhibits A-77, A-78, A-79 and A-80 which show the total sales, cost of sales, profit on sales, return on investment, and total investment in Bell and non-Bell business of the Western Electric Company. These work sheets and other information are bound up in 107 volumes.

The general Company cash books, journals and ledgers, and the reports which I have described and which are all in Court, are the first permanent records of the transactions of the Western Electric Company which they purport to reflect. While the Company's subsidiary cash books, jour-

nals and ledgers are kept for at least 15 years, no closing entry is made in such subsidiary ledgers until first that entry is made on the Company books reflecting these transactions. The Company books have at all times during this period been considered as the controlling books of the Company. The Western Electric Company has relied during the entire period referred to (1916 to 1931), and does now rely, in making its calculations, its investments, and for the practical administration of its business (including the determination of its profit and return on its investment, on sales, and the like), on its Company books, located in New York, consisting of ledgers, journals, and cash books, and on reports received from subsidiary locations—subsidiary cash books, ledgers and journals.

There are no entries made upon the subsidiary books maintained at these various manufacturing plants, distributing houses, and installation divisions, other than the entries made with respect to the business transacted at or through those specific locations. There are no records maintained or kept by the Western Electric, other than the general Company journals, ledgers and cash books, and the reports made to me and by me, as Comptroller, from which it is possible to obtain information or data concerning the transactions of the Company in its entirety.

[fol. 6324] Other than the records of the Hawthorne manufacturing plant, the Chicago distributing house, and the Chicago installation division, none of the subsidiary records of the Western Electric Company maintained at its various manufacturing plants, distributing houses, and installation divisions throughout the United States are within the State of Illinois. They are located at such far-distant points as Boston, Atlanta, Dallas, Los Angeles, San Francisco and Seattle. The expense of transporting these records to Chicago under proper supervision would be substantial. The inconvenience resulting from these records being taken away from the various locations where they are needed, particularly for the later years, for the recording of current transactions, would seriously interfere with the current recording of our business day by day. The hazard of transporting over 1,200 volumes, consisting of 525,000 pages, of which we have no copies, would be extremely great. It would be difficult, if not impossible, to replace these records if they should be lost.

It is possible, in my opinion, for a competent accountant, by the sole use of the records which I have now in this court room, to determine the accuracy of all of the figures appearing on the 4 exhibits to which I have already referred, and which will be offered in evidence in connection with my testimony, showing sales, cost of sales, net profit on investment, investment, etc., in the Bell and non-Bell business of the Western Electric Company for the period 1916 to 1931.

I have prepared and submitted for inspection to the attorneys or representatives of the defendants in this case, certain data and information obtained from the general books and records of the Western Electric Company and its subsidiaries. This information was furnished them beginning with July 9, 1931, and continuing from that time up to and including March 9, 1932. I have prepared in exhibit form a list showing in detail the data and information so furnished or submitted for the inspection of the representatives of the defendants. This is the instrument identified as Plaintiff's Exhibit A-73. This exhibit refers not only to the data which have been actually submitted to them in statement form, but also to records which were submitted for their inspection.

All of the statements referred to in these exhibits could [fol. 6325] be prepared from the books and records of the Company which I now have in the court room, without reference to the subsidiary records which I have described, with the exception of the exhibit to be introduced showing the division of sales of the Western Electric Company between the Chicago and the State areas; that information would have to be obtained from records which are located at Chicago, Illinois, and which can be produced in Court. The auditors, accountants and attorneys employed by the defendants have inspected the books and records of the Western Electric Company in its New York offices.

In the preparation of the exhibit which will be hereafter offered in evidence and identified as Plaintiff's Exhibit A-84 (which is a consolidated earnings statement of the Western Electric Company and its subsidiaries for the period 1916 to 1931), I used, in addition to the records of the Western Electric Company, the reports which I received from its subsidiary companies. They consisted of reports from the International Western Electric Company, the Northern Electric Company (which we do not control), and

from other subsidiary companies. There are in Court now, the ledgers, journals and cash books of subsidiaries of the Western Electric covering the period 1916 to 1931, from which the information appearing on this consolidated earnings statement can be obtained, so far as such subsidiaries are concerned.

The statement identified as Plaintiff's Exhibit A-74 gives a list of the particular records of the Western Electric Company and certain of its subsidiaries, which are now in Court.

The books and records of the Northern Electric Company, including its ledgers, journals and cash books, are kept at the headquarters of that Company in Montreal, Canada. The Northern Electric Company is not controlled by the Western Electric Company, and our statistics concerning that Company are covered by reports which we have received currently from them from time to time.

The Graybar Electric Company was sold to the em-
[fol. 6326] ployees of that Company at the close of 1928, and its books passed out of the possession of the Western Electric. The results of the Graybar Electric Company after it passed out of the control of the Western Electric at the end of 1928 are not, of course, consolidated subsequent to that date. During the period from 1926 to 1928, inclusive, while it was a 100 per cent owned subsidiary of the Western Electric Company, it was consolidated, and we have complete reports for that period.

We have received reports from the Northern Electric Company currently, and its results have been included in this consolidated statement in the ratio of our ownership of that Company, which is 43.6 per cent.

In addition to the ledgers, journals and cash books of the subsidiaries of the Western Electric Company which are now in Court, I have assembled and there are now in Court in binders, all other records, reports and work sheets used in compiling the consolidated earnings statement of the Western Electric Company and its subsidiaries for the years 1916 to 1931. It would be possible for a competent accountant to determine from the records now in Court the accuracy of the figures appearing on such consolidated earnings statement of the Western Electric Company.

The Western Electric Company of Illinois was organ-

ized in 1881. The present Western Electric Company (the Western Electric Company of New York) was organized in November, 1915, and commenced business November 17, 1915. The Western Electric Company of New York purchased the assets of the Western Electric Company of Illinois, and continued to carry on the business formerly conducted by the Illinois Company. Continuously since the organization of the Western Electric Company of New York, the American Telephone and Telegraph Company has owned a controlling interest in it. From 1916 to 1920, the American Telephone and Telegraph Company owned in excess of 97 per cent of the total outstanding common capital stock of the Western Electric Company of New York. Since 1920, it has owned over 98 per cent of the outstanding common capital stock.

[fol. 6327] I know of the execution of two contracts between the American Bell Telephone Company and the Western Electric Company of Illinois, the first of which was executed February 6, 1882, and the second, which is a modification of the former agreement in certain particulars, was executed on April 8, 1908. These two contracts are the ones identified in this record as City's Exhibits 60 and 61. The original contracts (City's Exhibit 60), as modified by the supplemental contract (City's Exhibit 61), is now in force between the American Telephone and Telegraph Company and the Western Electric Company of New York.

Hereafter, when the Western Electric Company is mentioned, I shall be referring to the Western Electric Company of New York, unless the contrary be specifically stated.

From 1916 to the present time, the Western Electric Company has been engaged chiefly in the manufacture of telephone apparatus and cable, the purchase and sale of supplies, and the sale of such manufactures to the Bell associated companies. The Bell associated companies consist of those companies with whom we have supply contracts. They are principally the Bell licensee companies, but there are some connecting companies with whom we have supply contracts that are included in this classification. During this period, the Western Electric Company has done business with other than Bell Telephone Companies, which has consisted of the manufacture of Western

Electric telephone apparatus and cable for sale to the independent telephone companies in the United States, and to others. When the Graybar Electric Company began business in 1926, it took over this business, and since that time has sold to the independent telephone companies and others, and has purchased supplies of other manufacturers for resale to other customers, including independent telephone companies in the United States. The Western Electric Company during this period has also sold its manufactures to the International Western Electric Company, to the Northern Electric Company, and to the International Standard Electric Company for use in foreign countries.

[fol. 6328] The Western Electric has sold its manufactures of talking motion picture equipment to its wholly owned subsidiary, the Electrical Research Products, Incorporated, since the time that Company began business on January 1, 1927, down to the present time.

I have prepared a chart, identified as Plaintiff's Exhibit A-75, which shows in skeleton form the corporate structure of the Western Electric Company and its principal subsidiary groups. This chart shows the duration and extent of the Western ownership, and includes the Bell Telephone Laboratories, Incorporated, of which the Western owns only 50 per cent of the common stock, and the Northern Electric Company, Limited, in which the Western owns only 43.6 per cent of the stock. I have not included in this chart any of the subsidiaries of subsidiaries. It does not include a large number of subsidiaries of the International Western Electric Company during the time that we owned it, nor does it include a large number of subsidiaries of the Electrical Research Products, Incorporated, which are now in existence.

The International Western Electric Company was formed to take over the foreign business of the Western Electric Company, and was first organized in 1882. During all of the time up to the date of its sale, it manufactured telephone apparatus and cable at various localities in Europe and other foreign countries, and also purchased Western Electric manufactures in this country for resale to its customers abroad. The Western Electric Company at all times owned 100 per cent of the International Western Electric Company. The International Western Electric

Company in turn owned 100 per cent of most of its subsidiaries. In some other of its subsidiaries, it owned more than 50 per cent, and in some, less than 50 per cent.

These companies, other than the Northern Electric Company, were sold by the Western Electric Company to the International Telephone and Telegraph Company on September 30, 1925. Since that date, the Western Electric Company has had no interest or ownership in this foreign [fol. 6329] business, with the exception of its 43.6 per cent interest in the stock of the Northern Electric Company.

There was an interchange of patent rights between the Western Electric Company and the International Company and its foreign companies.

During the entire period from 1916 to 1931, and down to the present time, the Western Electric Company has owned 43.6 per cent of the capital stock of the Northern Electric Company. The business of that latter Company has consisted, in the main, of the manufacture of telephone apparatus and cable, and the purchase of supplies for the Bell Telephone Company of Canada. It has also done quite an extensive supply business to the general trade in Canada and Newfoundland.

The Graybar Electric Company was organized in December, 1925, and began business January 1, 1926. The Western Electric Company owned 100 per cent of the stock of the Graybar Company from the date of its organization until that stock was sold to the Graybar Management Corporation, on December 31, 1928. The stock of the Graybar Management Corporation was owned by the employees of the Graybar Electric Company. Since December 31, 1928, the Western Electric Company's only interest in the Graybar Electric Company has been in some of its preferred stock, which is gradually being liquidated. The Western Electric ceased to have any ownership of any common stock of the Graybar Company on December 31, 1928.

The Graybar Electric Company is engaged in the distribution of Western Electric manufactures (cable and telephone apparatus), and in the purchase and sale of supplies of other manufacturers throughout the United States. That is substantially the same business, so far as that branch of it is concerned, as the Western Electric formerly carried on with its non-Bell customers through its Supply

Department. The Graybar also sells public address equipment, and other non-telephone articles.

The Electrical Research Products, Incorporated, was organized in December, 1926, and began business January 1, [fol. 6330] 1927. It is a wholly owned subsidiary of the Western Electric Company. It has never engaged in the manufacture or sale of telephone apparatus. The list identified as Plaintiff's Exhibit A-76 shows the classes of devices which are marketed by the Electrical Research Products. With respect to the several classes of devices shown on Exhibit A-76, the Electrical Research Products, Incorporated, has the right to use patents owned by the American Company or by the Western Electric Company.

The Western Electric Company acquired the Teletype Corporation on October 1, 1930. That corporation is engaged in the manufacture of telegraph printing instruments. Prior to October 1, 1930, the Western had no ownership, directly or indirectly, in the Teletype Corporation, but had been one of its customers.

The Bell Telephone Laboratories, Incorporated, was organized in December, 1924, and began business January 1, 1925. It is owned 50 per cent by the American Telephone and Telegraph Company, and 50 per cent by the Western Electric Company. It was organized to take over the development and research work formerly done by the Western Electric Company. It does development and research work for the Western Electric Company, for the American Telephone and Telegraph Company, and for the Electrical Research Products, Incorporated. The work done for these three companies is billed to the respective companies at cost, plus interest on the investment. That rate of interest is 7 per cent per annum.

The Western Electric Company has some other subsidiaries which I have not specifically described. It has a railroad (the Manufacturers' Junction Railway Company), which is a plant facility of our Hawthorne plant. It has a real estate company, which is owned in conjunction with the New York Telephone Company, at 395 Hudson Street, New York, and some other minor companies.

The instrument identified as Plaintiff's Exhibit A-77 shows, for each of the years 1916 to 1930, the sales, total cost of sales, net profits, per cent net profits to sales, average in- [fol. 6331] vestment, and the per cent return on investment,

on Bell business. The figures at the bottom of this exhibit, opposite the word "Total," are the aggregate amounts of the various figures appearing against each year. Thus, it shows that the per cent of net profits to sales on business done by the Western Electric with its Bell customers during this period has been 4.9 per cent; and that the per cent return on investment for the same period, and also in connection with its Bell business, has been 7 per cent. There are not included in the figures used in this exhibit, any profits on, or expenses relating to, any business done by the Western Electric Company during the years included in the exhibit with companies other than the Bell associated companies.

On Exhibit A-77, under the column "Sales," is shown the aggregate of the billing to Bell Companies by years. Under the column "Total Cost of Sales," are shown the costs which have to be in part allocated or apportioned. In determining the cost of sales, the manufacturing costs of apparatus and cable sold to Bell customers are the same as the manufacturing costs of cable and telephone apparatus sold to non-Bell customers, and they require no allocation. They are direct costs. The installation costs are also direct costs. The remaining costs and expenses have to be allocated or apportioned. Where the time factor is involved, they have been divided on the basis of the time devoted to Bell business relative to the time devoted to non-Bell business. All other costs have been apportioned or allocated on the basis of the shop costs of sales. There has been deducted from the total cost, an item for interest received, which practically classifies itself without allocation. The interest received is principally on so-called Class C stock, representing returned goods from the Telephone Companies. There are also included Federal taxes, which, of course, are apportioned at the prevailing rate on the net profits previously ascertained from the application of the allocations I have mentioned.

The third column represents the difference between the first and second columns. The fourth column, "Per Cent [fol. 6332] Net Profits to Sales," represents the relation of the third column to the first column. The fifth column represents "Average Investment," and the sixth column represents "Per Cent Return on Investment."

The average investment includes the cost of plant plus merchandise, plus receivables, plus cash, less accounts pay-

able, and has been apportioned between Bell and non-Bell business on the following basis: the allocation of plant has been based on usage, as determined by the shop cost of sales. Merchandise in a great many cases is segregated for Bell and non-Bell customers, and requires no allocation, but where allocation is required, the merchandise is apportioned on the basis of shop cost of sales. Receivables classify themselves. Cash and accounts payable are apportioned on the basis of the purchases of plant and the shop cost of sales.

In my opinion, the figures appearing in the column "Total Cost of Sales," reflect the direct and apportioned costs of the Bell business, as I have defined it, as taken from the books and records of the Western Electric Company. In my opinion, the apportionments and allocations which I have made are made upon a proper and correct basis. In my opinion, the apportionment of average investment is a proper one, and when the method which I have followed has been applied as I have applied it, it will correctly show the investment devoted to the Bell business in each of the years.

I prepared an exhibit, identified as Plaintiff's Exhibit A-78, which gives information similar to that contained in Exhibit A-77, but includes the year 1931, estimated on the basis of 8 months. This exhibit was prepared prior to the end of 1931. The 1931 figures were prepared by using the 8 months' figures, and adding 50 per cent to those figures to obtain the 12 months' figures. At the time Exhibit A-78 was prepared, the 1931 figures were not available, but have become so within the last week or 10 days. The actual figures for 1931 are as follows: under the column "Sales," the actual figure is $219,535,000; "Total Cost of Sales," $209,035,000; "Net Profits," $10,500,000; "Per Cent Net [fol. 6333] Profits to Sales," 48 per cent; "Average Investment," $270,423,000; "Per Cent Return on Investment," 3.9 per cent. The fact that the per cent of net profits to sales and the per cent of return on investment, as shown by the actual figures for 1931, are a trifle higher than those included in Exhibit A-78 (based upon the estimated year's results on the basis of 8 months), does not change the overall result shown at the end of this exhibit for the entire period. The effect of the difference between the estimated figures and the actual figures is so small in proportion to the total that it makes no change aggregating as much as .1 per cent.

We have only carried our figures in this exhibit to the first decimal point, and that is not affected by this change.

In the preparation of Plaintiff's Exhibit A-78, the same methods of apportionment and allocation were used as in the preparation of Plaintiff's Exhibit A-77, concerning which I have just testified. The explanation which I have just given of the methods used in the preparation of Plaintiff's Exhibit A-77, applies equally to Plaintiff's Exhibit A-78. In Plaintiff's Exhibits A-77 and A-78, I have included all sales of telephone instruments made by the Western Electric Company to the American Telephone and Telegraph Company since January 1, 1916.

Plaintiff's Exhibit A-79 shows the sales, total cost of sales, net profits, per cent net profits to sales, average investment, and per cent return on investment of the Western Electric Company in its non-Bell business, for each of the years 1916 to 1930, and for the 15-year period. Exhibit A-80 shows similar information for the period 1916 to 1931. These two exhibits also were prepared under my supervision from the books and records of the Western Electric Company. In the preparation of these two exhibits, showing the results of non-Bell business, I have used the same methods of apportionment and allocation as I did in the preparation of Plaintiff's Exhibits A-77 and A-78, and the explanation about those exhibits applies equally to Exhibits A-79 and A-80, except, of course, that these two latter exhibits are in connection with non-Bell business, while A-77 and A-78 are in connection with Bell business.

[fol. 6334] In the preparation of Exhibits A-77, A-78, A-79 and A-80, which show sales, total cost of sales, net profits, per cent net profits to sales, average investment and per cent return on investment of the Western Electric Company in its Bell and non-Bell business, I have considered only the operating business of the Western Electric during the period involved. There is one exception to this, and that is for the period 1916 to 1925. There we have included the dividends and interest received from the Manufacturers' Junction Railway, from the 395 Hudson Street Company (our real estate company in New York), the interest on notes of the Bell Telephone Laboratories, Incorporated, during the first year of its operation, and some other minor items, aggregating in total $1,800,000. But aside from these items, I have not considered any non-operating income. In Exhibits A-79 and A-80, I included

in non-Bell sales, all sales of the Western Electric Company to the Western Electric subsidiaries, as well as to outsiders.

In the instrument identified as Plaintiff's Exhibit A-81 appear several columns. The first column shows the years from 1916 to 1931 (1931 being estimated on the basis of 8 months plus 50 per cent). The second column shows the total sales of Western Electric manufactures to non-Bell customers during this period. The third column shows sales to domestic customers by our Supply Department prior to the organization of the Graybar Electric Company. The fourth column shows the export and foreign sales to the International Western Electric Company, Incorporated, and the Northern Electric Company, Limited. The fifth column shows sales to the United States Government, reflecting principally sales during the war years, since which time sales to the Government have been included in other classifications, as they are a relatively small amount.

In the next 4 columns are shown sales to distributors: Graybar Electric Company, Inc., from 1926 to 1931, inclusive; International Standard Electric Corporation; Northern Electric Company, Limited; and Electrical Research Products, Inc. The last column shows some minor sales to other customers.

[fol. 6335] In Plaintiff's Exhibits A-77, A-78, A-79 and A-80, the sales of the Western Electric Company in its non-Bell business, as shown in Exhibit A-81, have been included in the non-Bell business and excluded from the Bell business. No part of the development expense incurred and paid by the Electrical Research Products is included in the development expense charged against Bell or non-Bell business in Exhibits A-77, A-78, A-79 and A-80.

During the period 1927 to 1931, the Electrical Research Products, Inc., incurred development expense in the conduct of its business, and likewise received royalties in connection with its business. A portion of these royalties were retained by the Electrical Research Products, and a portion of them were paid to other corporations and persons. The Western Electric Company during this period also received certain royalties, and paid portions of them to other corporations. The International Western Electric Company, Inc., and the Western Electric Company, Limited, of Canada also received royalties from certain of their respective subsidiaries and others.

The statement identified as Plaintiff's Exhibit A-82 shows the income from royalties and patents sold, and expenses applicable thereto, of the several companies to which I have referred, and shows how these royalties have been distributed. This exhibit shows that information with respect to the period 1916 to 1931 in the first column, and like information for the period 1923 to 1931.

In the first grouping on this exhibit are shown the gross royalties received by the Western Electric Company, the Electrical Research Products, Inc., the International Western Electric Company from its subsidiaries, and those received by the International Western Electric Company and its subsidiaries from others. All of the gross royalties shown in this grouping are divided between the periods 1916 to 1931 and 1923 to 1931, and include the amount received for patents sold.

The second grouping shows the distribution of those gross royalties listed under the first grouping. There is shown the [fol. 6336] amount distributed to the American Telephone and Telegraph Company under contract with it, and to the Vitaphone Corporation under contract with it. There is also shown the distribution to the Northern Electric Company, Limited, and to the International Standard Electric Corporation, and three other cases in smaller amounts. The balance retained by the Western Electric Company, the Electrical Research Products, Inc., and the International Western Electric Company and its subsidiaries after this distribution, is shown in the third grouping.

The fourth grouping shows the expenses applicable to the royalties received and patents sold, as incurred by the Western Electric Company on royalties and patents sold, as incurred by the Electrical Research Products in development expense, and as incurred by the Electrical Research Products in other expenses. The last line shows the net royalties and patents sold, and represents the difference between the third group and the fourth group.

This exhibit is not a set-up that relates itself to the Western Electric Company alone, or to any other of these companies alone. What I have done is to take the royalties received, not only by the Western Electric Company, but by the Electrical Research Products, and by the International Western Electric from some certain of its subsidiaries and by its subsidiaries from others. The groupings represent royalties arising from these various sources; the

other groupings relate themselves also to the same corporate entities.

This exhibit shows, in the first column of figures, that for the years 1916 to 1931 there was an excess of $2,243,000 of royalties received and retained, above the development expense and other expenses applicable thereto. If this sum of $2,243,000 should be credited to the Bell business, the effect on the per cent of profit made by the Western Electric Company on its Bell business during the period 1916 to 1931, as shown on Exhibit A-78, would be .1 per cent. It would increase the profit on the Bell business from 6.6 per cent to 6.7 per cent on the investment for the period 1916 to 1931, as shown on Exhibit A-78.

[fol. 6337] The data compiled for the exhibits, showing the profits on the Bell and non-Bell business of the Western Electric Company for the periods 1916 to 1930 and 1916 to 1931, were not compiled recently. They were compiled year by year. For instance, early in 1917 information was obtained as to the results of the business for 1916, and divided between Bell and non-Bell business, for the use of the administrative officers of the Western Electric Company. That same method was followed in subsequent years right up to the present time. During this entire period of time, the rate of earnings made by the Western Electric Company on its non-bell business was higher than the return made by it on its Bell business.

There are 4 or 5 factors that caused the variations in per cent of net profits to sales, and in return on investment throughout the several years. The first factor is the per cent capacity at which our manufacturing plants were operated. If they are operating at full capacity, it tends to decrease the cost. Raw materials purchased have varied up and down during the period, and labor rates have shown a constant increase from 1921 up to recent years; this is particularly true of our productive labor rates. There is the further factor that, during all of this period, we have made reductions in prices to our customers. All of these factors taken into consideration, and with various weightings for the various years, result in the percentages shown as return on investment during this period. In my opinion, the results of a single year's operation are not representative of the Company's business, and to get a fair cross-section of that business we must take a number of years.

A number of decreases and increases in prices have been made by the Western Electric Company to the Bell associated companies during the period 1916 to 1931. The prices on lead covered cable, being dependent largely on prices of copper and lead, have fluctuated with the prices of copper and lead. The prices of supplies have fluctuated as the costs of supplies have fluctuated. We made reductions in prices [fol. 6338] of telephone apparatus from 1921 until November 1, 1930, when an increase was made.

The statement identified as Plaintiff's Exhibit A-83 shows the effect in dollars of the price changes made by the Western Electric Company in the years 1921 to 1930. This exhibit relates itself to sales of telephone apparatus, and does not include lead covered cable or supplies. The amount shown opposite each year on this exhibit represents the price change related to the volume of business in that particular year. They are not cumulative. Where a plus figure appears, it means that the price was more than it had been previously, and where a minus figure appears, it means that the price was less than previously. In one year (1923), there was a slight increase in prices, and in all of the years since, except in 1930, there was a decrease. In 1930 there was an increase.

If the 1921 prices of the Western Electric Company had been in effect in 1930, the Bell Telephone Companies would have paid $97,000,000 more for their purchases than they actually did pay in 1930. In other words, the 1930 prices were $97,000,000 less than the prices for 1921. This includes the effect of the 1930 price increase during the two months in which the price change was in effect. The percentage of reduction in prices during this period was slightly less than 40 per cent.

The instrument identified as Plaintiff's Exhibit A-84 shows the consolidated earnings of the Western Electric Company, including its subsidiaries and the subsidiaries of its subsidiaries, for the years 1916 to 1931. On the first line are shown the net profits for this period of $244,594,000. On the second line is shown the average investment of $3,229,000,000. The third line shows the per cent return on investment of 7.6 per cent.

The average investment shown in Exhibits A-77, A-78, A-79 and A-80 includes the book cost of plant undepreciated, that is, the purchase price of the plant; it also includes

the merchandise stock that we have on hand for use either for Bell or non-Bell customers, receivables due from our [fol. 6339] customers and the amount of cash that we necessarily must have on hand for use in the business. There is deducted from the total of these items, the current accounts payable.

This investment was apportioned between the Bell and non-Bell business on the following basis: the book cost of plant is apportioned on the basis of usage of that plant, as determined by the shop cost of sales to the Bell customers and the non-Bell customers; for example: if we had a particular machine, the question was as to how we were to apportion the book cost of that machine. Say that 10 articles were made on that machine which were sold to Bell customers and 5 articles were made on it which were sold to non-Bell customers. Now, that would have a relation to the apportionment of the book cost of that machine. If 10 items of the same cost were sold to Bell customers, and 5 items of the same cost to non-Bell customers, two-thirds of that investment would be applicable to Bell business and one-third to non-Bell business during the period of time during which those sales were made. In the illustration just given, the investment in Bell and non-Bell business, respectively, changes slightly from year to year, depending upon the use of the machine relatively for Bell and for non-Bell purposes.

In determining what our investment was, we have not made any deduction from the purchase cost of the property. We made a study at one time to ascertain whether the plant, if reproduced new, less depreciation, would equal or be less or more than the book cost of plant. The facts concerning that study have been submitted to counsel on the other side.

The investment of $3,229,000,000 shown on Exhibit A-84 includes not only the average investment of the Western Electric Company, but also the average investment of all of its subsidiaries and subsidiaries of subsidiaries. Where the Western Electric Company has owned less than 100 per cent of a company, the per cent of that investment representing Western Electric ownership is included.

[fol. 6340] This exhibit (A-84) includes, for the period of time shown on its face, that is, 1916 to 1931, all of the aver-

age investment on the basis I have described for the Western Electric Company, as well as that Company's earnings, whether operating or non-operating, and its interest in the earnings and investment of every corporation in which it owned 50 per cent or more interest, except that the Northern Electric Company, of which we own 43.6 per cent, is also included. Where the interest of the Western Electric Company in another company is less than 50 per cent and we do not control it, we have considered that as a sundry investment.

This statement (Exhibit A-84) shows all the earnings of the Western Electric Company and all of its subsidiaries during the entire period of time, related to the average investment, including either the whole of that investment or the proportionate part of it represented by Western's ownership. It shows that in the Western's business during this period of time, it has earned 7.6 per cent, whether those earnings are distributed or undistributed. It shows all of the earnings of the Western Electric Company and all the earnings of its subsidiaries, and the earnings of the subsidiaries of subsidiaries, to the extent of their ownership, where that ownership is in excess of 50 per cent. In the case of the Northern Electric Company, we have included its earnings to the extent of our ownership, even though that ownership is less than 50 per cent. It includes Western's profits, and, to the extent of its ownership, the profits of these other companies, whether those profits are held by the companies, or distributed by them to the Western, or distributed by it.

Since the sale of Graybar stock to the Graybar Management Corporation, as of December 31, 1928, the Western Electric Company's interest in the Graybar Electric Company has been confined to the dividends that it has received from the preferred stock in that Company. It has shared in the profits of the Graybar Company in the relation of the preferred stock to the total; that is, if it had 60 per cent of the preferred stock at the beginning, it had 60 per cent of [fol. 6341] the net profits after certain deductions, but that percentage has gradually decreased as the preferred stock interest decreased. The preferred stock interest now held by the Western Electric is $4,000,000; it was originally $6,000,000.

The earnings of the Teletype Corporation, which was

purchased by the Western Electric Company on October 1, 1930, and the investment in that Company appear on Exhibit A-84 for the period October 1, 1930, to December 31, 1931.

Exhibit A-85 shows the average investment and the average annual earnings of 88 manufacturing companies for the 6-year period 1925 to 1930, inclusive. To prepare this exhibit, we first examined the Standard Statistics Manual, which is an index of large industrial companies in the United States. We then went to Poor's and Moody's Manuals for the data. We eliminated from the original list of 579 companies those companies which were obviously not comparable with the Western Electric Company, such as extracting companies, mining and oil companies, railroads and public utilities. We also eliminated all steel companies, for, although they have extensive manufacturing interests, their other interests are also extensive. They are in the shipping business, the railroad business, and the mining business; it was impossible for us in any way to segregate that information and data from their total business. We further applied the test of size, eliminating all companies whose profits in the years 1925 to 1929, inclusive, amounted to less than $5,000,000, and whose income in more than one year fell below $1,000,000. We also made sure that there was enough information in Poor's and Moody's Manuals as to their depreciation and cost of plant to enable us to put them, as far as possible, on a comparable basis with the Western Electric Company.

After applying all these tests, we eliminated all of the original 579 companies except the 88 which are listed in Exhibit A-85.

On the second page of this exhibit (A-85), it appears that these 88 companies earned, during the 6-year period, 12.2 per cent on investment. One of the tests which we had applied to arrive at these 88 companies was to make sure [fol. 6342] that we had sufficient information on depreciation, so that we could make up the average investment on the same basis as we ascertained the average investment for the Western Electric Company. The average investment for all of these companies includes the book cost of plant, without deduction for depreciation.

The instrument identified as Plaintiff's Exhibit A-86 shows sales for all of the 88 companies where sales informa-

tion was available. We could only find sales information for 38 of the 88 companies. This exhibit shows that, during this period of 5 years, the per cent profits to sales has been 11.6 per cent.

The tests for selecting the particular companies listed in this exhibit, to which I have referred, were applied for the period 1925 to 1929, inclusive, and the 1930 figures were added without attempting to apply the tests for that particular year.

This exhibit shows that, out of 88 companies included in Exhibit A-85, we could arrive at the per cent of net profits to sales for 38 of them, for the period 1925 to 1930, and during that time those 38 companies had earned 11.6 per cent on sales. The total figures in this exhibit are the actual figures for all of the companies, both as to sales and as to net profits; that is, the 38 companies during this 6-year period had $21,289,883,000 in sales and earned $2,469,549,000 in profits.

Plaintiff's Exhibit A-87 shows the ranking of those companies appearing on Exhibit A-86, and the Western Electric Company on its Bell business, during the same 6-year period with respect to the per cent of net profits on sales.

Plaintiff's Exhibit A-88 shows, in the first column, the years 1916 to 1930. It shows in the second column the per cent of sales of telephone apparatus to all Bell Companies to the total sales to all Bell Companies. In the third column it shows similar information for the Illinois Bell Telephone Company. The fourth and fifth columns show this information for lead covered cable, and the sixth and seventh columns for supplies.

[fol. 6343] The second column shows, with respect to each of the years, the per cent which the sales of telephone apparatus to all Bell Companies bear to the total sales made by the Western Electric Company to all Bell Companies. The third column shows the per cent which the sales of telephone apparatus to the Illinois Bell Telephone Company bear to the total sales of the Western Electric Company to the Illinois Bell Telephone Company for each of these years, and the other columns contain similar information with respect to lead covered cable and supplies.

The sales of telephone apparatus to all Bell Companies for the years 1923 to 1931, inclusive, were 55.5 per cent of all sales to all Bell Companies. For the Illinois Bell Tele-

phone Company for the same period, the sales of telephone apparatus were 59 per cent of the total sales to that Company. The sales of lead covered cable to all Bell Companies for the period 1923 to 1931 were 15.6 per cent of the total sales of the Western Electric Company to all Bell Companies for the same period; and for the Illinois Bell, were 15 per cent of the total sales to that Company. The sales of supplies to all Bell Companies for this same 8-year period were 28.9 per cent of all sales to all Bell Companies, and the corresponding percentage for the Illinois Bell was 26 per cent.

The second page of Exhibit A-88 contains the same information with respect to the year 1931, as appears on the first sheet with respect to the years 1916 to 1930, inclusive.

The Western Electric Company has done a large business in supplies with its Bell System customers during the period covered by Exhibit A-88. From 1916 to 1930, inclusive, the total volume of supplies sold to all Bell associated companies was about $915,000,000. The Western Electric Company made .8 of 1 per cent on all these sales of supplies, which amounted to about $7,000,000.

Exhibit A-89 shows the division of Western Electric sales to the Illinois Bell Telephone Company for the years 1928, 1929 and 1930, divided between telephone apparatus, lead covered cable and supplies, and further divided between the Chicago and State areas of the Company. The second page of this exhibit shows similar information for the year [fol. 6344] 1931. The first grouping on this exhibit shows the total sales of telephone apparatus, lead covered cable and supplies for each of the years 1928, 1929 and 1930, and the per cent that such telephone apparatus, lead covered cable and supplies bear to the total sales for each of the years. The second grouping shows that portion of the first grouping which was in the Chicago area, and shows for each of the years the percentage that telephone apparatus, lead covered cable and supplies bore to the total sales. The third group shows similar information for sales in the State area of the Company for the same years.

For instance, Exhibit A-89 shows, under the title "Chicago," a grouping for the year 1928, which, of course, totals 100 per cent, and means that the figures represent the total purchases on behalf of the Chicago area from the Western Electric of manufactured articles and supplies for the year 1928. Now, 59.5 per cent of those total purchases were tele-

phone apparatus, 13.9 per cent were lead covered cable, and 26.6 per cent were supplies. That is the way the exhibit is set up, both for the Chicago and State areas, and for the Illinois Bell as a whole for each of these years.

Exhibit A-90 was prepared from the records of the Western Electric Company, and shows the sales of Western Electric manufactures for the years 1916 to 1930, and that part of the total sales represented by Bell business, both in dollars and as a percentage of the total. This exhibit shows the same information for supplies and for the total of both manufactures and supplies for the same period.

This exhibit (A-90) shows, in the last lines, a comparison of Western Electric sales for the 8 months of 1930 and for the 8 months of 1931, both of Western Electric manufactures and supplies, and of the total of the two. There has been a decrease in the sales for the first 8 months of 1931, as compared with the first 8 months of 1930. On Western Electric manufactures, there was a decrease of 38 per cent in the total, and 35.9 per cent on sales to Bell customers. On supplies, there was a decrease of 44.5 per cent in total [fol. 6345] sales, and a decrease in Bell sales of 44 per cent. The combined total of Western Electric Company manufactures and supplies shows a decrease for the 8 months of 1931, as compared to the 8 months of 1930, of 39.8 per cent for the total, and 38.2 per cent for Bell customers.

Plaintiff's Exhibit A-91 was prepared by me from the records of the Western Electric Company. It shows the book cost of plant facilities (which include land, buildings, service equipment, machinery, tools, furniture and fixtures), with the annual increases from 1916 to 1930, inclusive.

Plaintiff's Exhibit A-92 shows the owned factories of the Western Electric Company on June 30, 1931. It shows the locations of these factories and the dates of erection, acquisition, or major additions to them. It shows the kind of product manufactured at each of these 4 factories, which are: Hawthorne, Kearny, Queensboro and Point Breeze.

The supply business which the Western Electric Company does with its Bell customers represents sales of goods purchased by the Western Electric Company from others. It consists of a large number of different items which the Telephone Companies use and which we do not manufacture, such as poles and pole lines, hardware, line wire, in-

sulators, cross arms, conduit, furniture and supplies, directories, and miscellaneous items of a similar character.

The Northern Electric Company, of which I have spoken, is a Canadian corporation.

In the consolidated balance sheet, which I have heretofore described, where the Western Electric Company has owned less than 50 per cent of some of the foreign companies, those companies have been considered as investments and not as consolidated with the Western. This was not true of the Northern Electric Company, where we included a proportionate part of its earnings, although we own less than 50 per cent. I am referring now to a few of the foreign subsidiaries of the International Western Electric Company that operated in foreign fields. When the Western Electric Company owned less than a 50 per cent [fol. 6346] interest in them, we included merely the investment in our consolidated balance sheet. In all other cases, including the Northern Electric Company (where the Western Electric Company owns less than a control) and the Bell Telephone Laboratories (where it owns 50 per cent), they have been treated by including whatever proportion the Western Electric Company owned in them. In these small subsidiaries of the International Western, of which I have been speaking, we included the dividends received, but not the earnings of such companies.

There was included in the consolidated earnings statement about $5,000,000 of the profit on the sale of the International Western Electric Company. The total profit made on such sale was $7,100,000. These foreign companies had been engaged in business abroad commencing in 1882, and had made earnings from that time down to the date of the sale as of October 1, 1925, of the International Western Electric Company to the International Telephone and Telegraph Company. I included in the consolidated earnings statement, that portion of the profit on the sale attributable to the period 1916 to 1925, determined by the proportion which the earnings in that period bore to the total earnings of all foreign companies, from the commencement of their business in 1882.

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[fol. 6347] RICHARD H. GREGORY, recalled as a witness on behalf of the plaintiff, having been previously duly sworn, further testified as follows:

Direct examination,

By Mr. Thompson:

March 14, 1932.

The Western Electric Company has price lists for telephone apparatus and lead covered cable covering the period 1916 to 1931. The prices included in those lists are the same at any given time for all of the Bell associated companies.

The instrument identified as Plaintiff's Exhibit A-91 shows the book cost of plant facilities of the Western Electric Company, including land, buildings, service equipment, machinery, tools, etc., as of December 31, 1915, and as of December 31 of each year thereafter down to the end of 1930, and also shows the amounts added during each of the years. These plant facilities have been entered upon the books of the Western Electric Company and included in my average investment figures at their actual cost to the Western Electric Company.

There is no item added in the column headed "Average Investment" in the Exhibits A-77, A-78, A-79 and A-80, for going concern value, good will, patents or development expense. On December 31, 1931, the Western Electric Company owned 4,276 patents, and was licensed under 4,775 patents. The Western Electric Company has received, during the period 1925 to 1931, $695,000 in royalties from the [fol. 6348] Northern Electric Company, and this sum for the years 1925 to and through 1931 has been reflected in Exhibits A-77, A-78, A-79 and A-80. The effect of this treatment of royalties has been to reduce the expense entering into the cost of sales.

Prior to 1925, the Northern Electric Company paid a royalty to the International Western Electric Company amounting to about $279,000. That has been given consideration in Exhibit A-82, showing income from royalties and patents sold.

During the period 1916 to October 1, 1925, the Western Electric Company received $860,000 from the International Western Electric Company for supervisory and patent services rendered.

Exhibit A-81 shows sales by the Western Electric Company to the Electrical Research Products of something in excess of $46,000,000 for the period 1927 to 1931, inclusive. I have testified that the expenses of the Western Electric Company for its research and development work were spread on these manufactures, as well as other manufactures of the Western Electric Company. Development expense, amounting to approximately $3,500,000, was included in the cost of these sales of $46,000,000 to the Electrical Research Products. The Electrical Research Products pays the Western Electric Company royalties on account of the releases by the American Telephone and Telegraph Company to the Western Electric Company of the right to sell restricted apparatus covered by patents of the American Company. During the years 1927 to 1931, inclusive, the royalties on account of these patents amounted to $1,493,000. The Western Electric Company paid this money to the American Telephone and Telegraph Company.

The International Standard Electric Corporation paid the Western Electric Company $918,000 on account of royalties from October 1, 1925, through the year 1931. This sum, to the extent of the payment, has reduced the expense that has entered into the cost of sales in my exhibits.

[fol. 6349] Exhibit A-88 shows the per cent of sales of telephone apparatus, lead covered cable and supplies to total Western Electric sales to all Bell Companies, and shows similar information for the Illinois Bell Telephone Company for each of the years 1916 to 1930. I have given in my testimony the percentage relationship for the period 1923 to 1931. The same percentage relationship for the period 1916 to 1931 is as follows: per cent of total sales of telephone apparatus to total sales to all Bell Companies, 53.7 per cent; per cent of total sales of telephone apparatus to total sales to Illinois Bell Company, 59.1 per cent; per cent of total sales of lead covered cable to total sales to all Bell Companies, 15 per cent; the corresponding figure for the Illinois Bell is 15.1 per cent; the per cent of total supplies to total sales to all Bell Companies is 31.3 per cent, and for the Illinois Bell, 25.8 per cent.

The classifications (telephone apparatus, lead covered cable and supplies) appearing on these exhibits are the three main classifications of the sales of the Western Electric Company. From 1916 to 1931, the Western Electric Company

has made a different profit on sales and on investment in each of these three classifications.

I have prepared certain exhibits, identified as Plaintiff's Exhibits A-93, A-94, A-95, A-96, A-97 and A-98, which make certain comparisons between profits on sales and investment of the Western Electric Company in its total business, and in its business with the Illinois Bell Telephone Company, and for a portion of the time with the Chicago area of the Illinois Bell Telephone Company.

Exhibit A-93 shows the sales, the per cent net profit to sales, and per cent return on average investment for the total Bell business and for the Illinois Bell business for the period 1916 to 1931, inclusive. It shows total sales on Bell business during this period in excess of $3,100,000,000, and shows Illinois Bell business in excess of $209,000,000. It shows that the per cent net profit to sales on all Bell business is 4.9 per cent, and the per cent net profit to sales on Illinois Bell business is 5.3 per cent. It shows that the per cent return on investment for the whole Bell business is 6.6 per [fol. 6350] cent, and on the Illinois Bell business, 7 per cent. This is for the period 1916 to 1931, and includes not only sales of manufactured articles, that is, telephone apparatus and lead covered cable, but also supplies, both for the Illinois Bell and all Bell associated companies.

Exhibit A-94 shows in total the same figures shown on Exhibit A-93, and a breakdown both on the Bell business and the Illinois Bell business between telephone apparatus, lead covered cable and supplies.

Exhibit A-95 corresponds to Exhibit A-93, except that it covers the period 1923 to 1931, whereas Exhibit A-93 covers the period 1916 to 1931.

Exhibit A-97 shows the sales, per cent profits to sales, and per cent return on average investment for the total Bell business and for the Illinois Bell business in the Chicago area for the period 1928 to 1931, inclusive. It shows that the total sales on Bell business during this four-year period amounted to slightly less than $1,200,000,000, and sales to the Chicago area of the Illinois Bell Telephone Company amounted to slightly in excess of $49,500,000. The per cent net profit to sales on the Bell business was 4.8 per cent, and on the business of the Illinois Bell in its Chicago area was 4.5 per cent. The per cent return on investment for the

total Bell business during this four-year period was 6.3 per cent, and the return on the Illinois Bell business in its Chicago area was likewise 6.3 per cent.

Exhibit A-98 is the same sort of breakdown or explanation of Exhibit A-97 that Exhibit A-94 was for Exhibit A-93. This exhibit (A-98) shows such a comparison for the years 1928 to 1931. The available data for the purpose of making such a comparison on the basis of profit on sales and return on investment on all sales of the Western Electric in its Bell business and sales for the Chicago area is limited to this four-year period.

In all of these exhibits (A-93 to A-98), the figures have been prepared on the basis of profits on sales and return on [fol. 6351] investment both in the total Bell business and in the business done with the Plaintiff Company in the Chicago area on the basis of these three general classifications: telephone apparatus, lead covered cable and suppl-es.

As plant facilities are retired from use by the Western Electric Company, the book cost of such retirements are taken out of our fixed investment. In the years 1924, 1925, 1926 and 1927, the Western Electric Company accrued an extraordinary reserve against plant in an amount slightly in excess of $8,200,000. In reviewing the situation at that time, it was felt that the costs of construction of the buildings, service equipment and machinery, were high, due to the great activity then existing throughout the United States. It was felt that it was wise and sound that this period should stand some of that excess cost of construction. An estimate was made of the cost of reconstructing the plant during the period 1931 to 1940, and the difference between that estimate and the cost as shown on the books at the end of 1927, which amounted to $8,200,000, was charged to the cost of sales. If this amount had been treated on Exhibit A-78 as plant retired and written out of the plant accounts, it would have increased the return on Bell business by approximately .3 per cent. The result of the same computation applied to the earnings on investment in Bell business during the period 1923 to 1931 also would have increased the return on Bell business by approximately .3 per cent.

When the Electrical Research Products Company was organized, the Western Electric Company transferred to that company an option which the Western Electric Com-

pany had acquired to purchase the stock of the International Telephone Sales and Engineering Corporation. The International Telephone Sales and Engineering Corporation was a holding company owning a controlling interest in the Automatic Electric Company, which was engaged in the manufacture and sale of telephone apparatus and equipment. There was a contractual relationship between the Automatic Electric Company and the Western Electric Company, com- [fol. 6352] mencing in 1919 and continuing down to the present time (the expiration date of the present contract is December 31, 1936). The present contract with the Automatic Electric Company provides for a minimum annual purchase of $2,600,000 of automatic equipment from the Automatic Electric Company.

This option was surrendered by the Products Company to the original owners May 26, 1927, for a consideration of $4,000,000 paid in installments. If this figure were to be given effect in Plaintiff's Exhibit A-78, we would first have to take into account the period of 17 years during which there were contracts between the Western Electric Company and the Automatic Electric Company. We should also have to take into account the Federal Income Tax on such amount. If this amount were to be treated as a credit to Bell business, it would result in a net credit of $2,900,000 and would increase the return on investment in the Bell business shown on Exhibit A-78 by .1 per cent. It would also increase profits on Bell business for the period 1923 to 1931 by .1 per cent.

If all of the amounts involved in the extraordinary reserve accrued from 1924 to 1927, and in connection with the Automatic Electric Company, and in connection with the excess of royalties and patents sold shown in Exhibit A-82, were treated as credits to Bell business, they would have increased the rate of return shown in Exhibit A-78 from 6.6 per cent to 7.1 per cent for the period 1916 to 1931 inclusive. The same sort of calculation for the period 1923 to 1931, inclusive, would have increased the return on the Bell business from 7.1 per cent to 7.7 per cent.

(Exhibits A-93 to A-98, both inclusive, were offered in evidence by plaintiff. Right to object was reserved until after conclusion of Mr. Gregory's testimony.)

[fol. 6353] Cross-examination.

By Mr. Goldstein:

I have some documents, prepared at the request of counsel for the defendants, and which I have submitted to them, entitled "Analysis of Cost of Sales to Bell and non-Bell Customers."

(The following documents were identified by defendants: Defendants' Exhibit D-19, "Analysis of Cost of Sales to Bell and Non-Bell Customers"; Defendants' Exhibit D-20, "Analysis of Cost of Sales of Telephone Apparatus to Bell Customers"; Defendants' Exhibit D-21, "Analysis of Cost of Sales of Lead Covered Cable to Bell Customers"; Defendants' Exhibit D-22, "Analysis of Cost of Supplies to Bell Customers"; Defendants' Exhibit D-23, "Analysis of Cost of Sales of Western Electric Manufactures to Non-Bell Customers"; Defendants' Exhibit D-24, "Analysis of Cost of Sales of Supplies to Non-Bell Customers".)

These are correct copies.

On Defendants' Exhibit D-19 is a column headed "Additions to Employees' Benefit Fund", both under Bell Customers and Non-Bell Customers. The sum of $2,000,000 shown under this column for Bell business for the year 1924 is the total amount included in the cost of sales, but these columns do not in all of the later years represent the total amount that is included in the cost of sales, as additions to the pension fund have been included in other costs. The pension fund plan was started in 1906, from which time up to and through 1923, the amounts were set aside by action of the Board of Directors without any actuarial studies. Beginning with 1924 and up to the present time, actuarial studies have been made, based on censuses taken at two-year intervals; that is, 1931, 1929, 1927, 1925 and 1923. As a result of these actuarial studies, the Board of Directors and the officers of the Company have ascertained the amounts which should be included in the cost of sales. Of course, as we have gone on from year to year our experience has grown. We have found that for the first two years there is not enough information to know what the trend is [fol. 6354] going to be, but as we go on we get more accurate information. If we should go back now and do the thing over again on the basis of our present information of service life, service of employees, the age of employees, and the

salary or wage level (which has been increasing during this time), and other data that we have, the amounts that we would set aside would be increased over the amounts that we have actually set aside over this period.

I furnished the defendants two sheets, one entitled "Pension Fund Transactions" and identified as Defendants' Exhibit D-25, and the other entitled "Actuarial Computations of Required Pension Accruals, 1916 to 1930, and Minimum Fund Required", identified as Defendants' Exhibit D-26.

"Q. As I understand it, when in 1924 you determined to deduct from operating income certain amounts for your pension fund accruals, you found that if you had gone back to 1916 and had made accruals on the actuarial basis, you would have had to take out of current income for those preceding years amounts aggregating around $8,200,000, is that correct; that is, you were short by 1924 amounts aggregating $8,200,000?

"A. That is approximately correct."

In the years 1925, 1926 and 1927 we did not make up the entire deficit resulting from the years 1916 to 1923. We made up a part of it. For the period 1916 to 1931 we have not accrued as much as we should have under our actuarial computations.

In the year 1925, we set aside $1,773,000 in excess of the amount that would be required under our actuarial studies; in 1926, $3,100,000; in 1927, $2,871,000; in 1928, $249,000; but we set nothing aside in excess of the requirements shown by the actuarial studies for the years 1929 and 1930. In 1924 we were short of the amount required under our actuarial studies by $209,000; in 1923 we were short $2,000,000; in 1922 we were short $1,500,000; in 1921 we were short $1,300,000; in 1920 we were short $1,044,000; in 1919 we were short $660,000; in 1918, $657,000; in 1917, $590,000; and in 1916, $391,000.

[fol. 6355] In the years 1925, 1926 and 1927, we made up about $7,744,000 of that shortage, which has been given effect in those years in Exhibits A-77, A-78, A-79 and A-80, but for the period 1923 to 1930 the amount charged in excess of actuarial requirements is only $5,784,000.

I have not computed the years 1925, 1926 or 1927 on the basis of only including in the operating expenses the amount which should have been set aside under the actuarial studies.

The amount of $2,000,000 shown for 1924 was charged against apparatus sold to Bell customers and nothing was charged against the sales of supplies to Bell customers, or against the sales of manufactures or supplies to non-Bell customers. As I explained in my direct testimony, these statements, the reports and the figures year by year are the ones that we use currently and were made up currently for the use of the administrative officers of the Company. In the year 1924 we did not attempt to segregate this amount between Bell and non-Bell customers. In all of these exhibits we are showing the actual figures which were made up for administrative purposes in those particular years. If we went back now and made a redivision in the light of our present information, we would find some that we would add to the Bell business and some that we would subtract from the Bell business.

In the years subsequent to 1924, we made an allocation of the pension fund between Bell and non-Bell business. I am not sure, but I think that in making up the deficit in the years 1916 to 1923 in pension fund accruals it was done on the basis of the employees in 1916 for 1916, those in 1917 for that year, and so forth. It was done on the best estimate we could get. We had no experience up to 1924, so this was just an estimate without any check.

The pension fund accruals, beginning with 1924, are based upon actuarial studies. I know that the methods used by the operating companies of the Bell System are the [fol. 6356] same as our methods. I am not an actuary, but, in general, I am familiar with the fundamental principles underlying these studies. The factor of future separation of the employees enters into the consideration of these studies. I cannot testify as to whether or not in the study of 1924 we assumed that the future separation of the employees of the Western Electric Company would presumably be substantially as it had been in the previous experience of the Company. I am not familiar with what we assumed as to the future separation of Western Electric employees. All of the data in this actuarial study were made up by the Chief Statistician of the Company, who is a former professor of mathematics of Brown University, and I am not familiar with the details of it. Mr. R. W. Burgess is the Chief Statistician of the Western Electric Company, and is the man who is familiar with the details of that study. Neither am I familiar with the studies subsequent to 1924.

I know about the income tax returns of the Western Electric. Up to 1927 there was no law which allowed us to make any deductions for pension accruals. In 1927 an act of Congress was passed allowing accruals in the current year to be deducted as a current operating expense. We have followed the provisions of that law in our income tax returns since that time. Since 1927, we have deducted each year from current operating income the entire amount that we have paid the Trustee for that year's accrual under the pension fund, including the interest, because it is the amount that we have paid the Trustee.

I am familiar in general with the arrangement made by the Western Electric Company with the Bankers' Trust Company. Under that arrangement, the Western Electric Company has the right to advise the Bankers' Trust Company as to the investment of the pension fund accruals deposited with it as Trustee. Since the inception of that plan, the Western Electric Company has always advised the Bankers' Trust Company to loan those accruals to it on its unsecured notes.

[fol. 6357] The accruals contemplate that the fund shall have future earnings at 4 per cent compound interest. When we borrow the money from the Bankers' Trust Company, we pay 5½ per cent interest. In the average investment appearing in these exhibits we have included the assets represented by the amount of the pension fund notes and have not deducted from the operating income the interest paid to the Bankers' Trust Company.

The amount of extraordinary depreciation, to which I have heretofore referred, is included in the column "Additional Depreciation of Plant" in Defendants' Exhibit D-19, but there are other items besides. The deduction for extraordinary depreciation in the year 1924 was estimated on the extraordinary cost of additions prior to and in that year. I am not sure whether the index numbers were used in 1924. My recollection is that there was a study made in 1924, but I do not know whether it was reduced to writing. The study to which I referred in my direct examination was the one made in 1927.

The journal entry as of December 31, 1924, shows that the deduction of $1,562,000 was approved by the Board of Directors on March 17, 1925. The sheet which I furnished counsel for the defendants, showing the journal entry, bears

the statement "Details on file in the General Accounting Department." That was seven years ago, but I am sure there were such details in writing in my department at that time; I do not know whether they are in existence now or not.

The $1,562,000 written off in 1924, as I recollect it, was based on an estimate made by our Plant Engineer and Engineer of Manufacture as to the amount that should be written off as representing the excess cost of construction of the additions made during the previous period of years.

The entry for December 31, 1927, is the one supported by a study. The entries for extraordinary depreciation of plant in that year were as follows: for Hawthorne: buildings, $469,000; permanent fixtures, $307,000; machinery, [fol. 6358] $610,000; total, $1,386,000; for Kearny: $246,000 for buildings, $71,000 credit for permanent fixtures, and $241,000 for machinery, or a total of $416,000. This made a total deduction of $1,803,000, which was supported by a detailed study and was in accordance with the action of the Board of Directors in 1928.

The sheet which recites "Details of journal entry for extraordinary reserve against plant, December 31, 1927" is a copy of a sheet which I made available to defendants.

(Which document was identified as Defendant's Exhibit D-27.)

Journal entry 284 for the year 1924 does not recite "Extraordinary depreciation written off to profit and loss of December 31, 1924, to revalue buildings, permanent fixtures and machinery to estimated cost for the next ten years." It states "Extraordinary depreciation as follows—with details on file in the General Accounting Department."

The statement "Extraordinary depreciation written off to profit and loss December 31, 1924, to revalue buildings, permanent fixtures and machinery to estimated cost for the next ten years" appears on the summarization that we have made of the whole study, and is my statement. That is, it is my conclusion from an examination of the books as to what should be charged off to depreciation. We have regular depreciation, but this represents additional or extraordinary depreciation of an entirely different nature from ordinary depreciation, in that it is for the purpose of setting aside a reserve for the excess cost rather than for

obsolescence and wear and tear. The entry in the books of the Company for this expense does not give a full explanation of it. It is extraordinary depreciation.

The journal entries do not give a full explanation of the details of this extraordinary depreciation reserve which I have explained, but the working papers from which I obtained the amount at the end of 1927, and which are really the controlling figures, are all here. These working papers [fol. 6359] were not controlling in 1924, 1925 and 1926. In 1927 we determined this amount on a more careful study than we had made before. In that careful study we used index numbers of the actual cost and of the future cost, and compared the two index numbers and found there was this excess. We had previously written off various amounts, so it left for 1927 an amount to be written off representing the difference between the amounts that we had written off in 1924, 1925 and 1926 and the amount found by this study, so the balance was written off in 1927.

By the Court:

This extraordinary depreciation does not represent depreciation in the ordinary sense of the word; that is, it is not depreciation for wear and tear and obsolescence. It is a reserve that was set aside for a decline in the cost of the plant, which we estimated would come in the future. We expected that we would be able to replace our plant in the period 1931 to 1940 at a lower figure than what it actually cost us, because it was perfectly evident that costs were extraordinarily high, perhaps due to war conditions. We were getting a large volume of business during that time, and getting the profits on that large volume of business, and we said, "It is fairer to charge this reserve against the profits at the time we are getting them rather than to make the lean years in the future stand the loss." That is anticipatory depreciation, all charged in four years for depreciation which would occur in the future.

By Mr. Goldstein:

In Defendants' Exhibit D-27, there is the entry "Extraordinary depreciation written off at December 31, 1924, to revalue buildings to estimated cost for next ten years." We made a study in 1927 and obtained this amount of $8,000,000, which it was necessary to write off. We then could

deduct from that sum the amount which we had written off for previous years and get the amount to be written off in 1927. In using the words "for the next ten years" in connection with 1924 entry, I had in mind the period of ten years following 1924.

[fol. 6360] The journal entry for extraordinary reserve against plant, as of December 31, 1927, was determined by an estimate made that year of the requirements for this amount, against which was credited the earlier deductions. We also credited the excess over normal depreciation on Hawthorne's books, resulting from writing back at December 31, 1924, the excess war costs of gross additions which were written off in the years 1917 to 1920, inclusive. In those early years (and I think that it was prior to 1920), we wrote off of the face of the accounts $884,000 for excess cost of construction which we thought was due to war conditions. In 1924, in order that we might have our plant account in its entirety on a cost basis, we wrote that amount back into the face of the account, but took into account the effect of the depreciation on that particular amount during the period up to 1924. Therefore, the amount of the credit to depreciation reserve is not $884,000, but is $598,000, or a difference of $286,000. We did not add back this difference to the income account; it did not affect it. We charged $884,000 against operating income from 1917 to 1920, which wiped out that much plant. We figured that the $286,000 difference between the charge of $884,000 and the $598,000 restored to the books was normal depreciation on that item if it had been in the plant account. The extraordinary amount was the difference between the two amounts, i. e., $598,000, which is included in this amount of $8,233,000. There were no credits to any operating income.

The 1927 entry was based upon certain studies.

(Defendants identified copy of sheet which had been made available to them by plaintiff, entitled "Extraordinary reserve against plant to bring additions to estimated cost level for 1931 to 1940," as Defendants' Exhibit D-28.)

Defendants' Exhibit D-28 shows the cost of additions to the Hawthorne buildings from 1917 to 1927 and cost indices on the basis of the index of 1914 at 100. Thus the 1917 cost index for additions to the Hawthorne buildings was 153 per cent of 1914 as 100 per cent. In other words,

[fol. 6361] the cost level of the additions to Hawthorne buildings in 1917 was 53 per cent higher than if constructed in 1914. We determined for each year's additions the cost index, based on 1914 as 100 per cent, not only for buildings but for permanent fixtures and machinery.

It was then estimated that if the additions made to the Hawthorne plant in 1917, for instance, were in existence in the period 1931 to 1940, or if they were replaced in the period 1931 to 1940, they might be replaced for 2.6 per cent less than they actually cost in 1917. The index figure for the period 1931 to 1940 for these 1917 additions was estimated to be 149.

That is the principle upon which the study is based. It is based on this assumption: if the same additions to buildings made in 1917 were replaced during the period 1931 to 1940, the replacement cost would be 2.6 per cent less than the actual cost.

Our regular depreciation plan is on the straight line method of spreading the cost, less salvage, over the period of the useful life of the property. We do not have a replacement reserve, but this extraordinary reserve is a reserve against decline in price of the construction of buildings, service equipment and machinery. We conceived in 1927 that if, during the period 1931 to 1940, we built $739,000 of additions, they would cost 2.6 per cent less than they did in 1917. This reserve was provided, not with the idea of replacing this plant in the period 1931 to 1940, but with the idea of finding out what it would cost to replace that plant if we had to replace it. We did not know in 1917 that we were ever going to replace these additions, and in 1927 we did not know whether we would replace those 1917 additions as of 1931. The basis of making that charge in 1927 was to charge during the period 1921 to 1929 or 1930 the excess cost of construction of our plant, because during that period we were having an extremely large amount of business placed upon us; our growth was very rapid, we were making large additions to our plant year by year, and we felt that it was only sound and con- [fol. 6362] servative business, exercising conservative business policy, to put into those years this excess cost of construction of that plant.

When I say "of that plant", I mean the excess cost of that plant upon the basis that the plant would be rendering

service from 1931 to 1940. We were determining how much less that particular plant would cost during the period 1931 to 1940 than it did cost us during the period of its actual construction. I do not know whether the plant that was built in 1917 would be in existence in the period 1931 to 1940. We considered, in making this study, that all of the additions that we made during this period would be in existence during the period 1931 to 1940, in order to get at this difference in price level or cost level of construction. In making up this study, we assumed that the machinery we built in 1919 would be in existence during the period 1931 to 1940.

We depreciate the machinery on the basis of 10 per cent per annum; that is, based on a life of ten years. We had $219,000 worth of machinery added at Hawthorne in 1919, and ten years from that time would be 1929. What we were trying to do was to get the difference in the cost level between the period of these additions and the period 1931 to 1940. It is the purpose all the way through to get at the cost level in 1931 to 1940, and, in getting at that cost level, I assumed that it would be correct to take these additions and, on the average, compare them with what the cost level would be in 1931 to 1940, and in that way we would get at a correct amount.

We took the dollars to take care of this reserve out of operating income for the years 1924 to 1927. There is no cash involved in this transaction. We received the dollars from our customers.

What we did was to exercise what, in our judgment, was sound business judgment, in order to get this into this particular period. Now, whether you put that into the cost of sales, or whether it is a segregation of profit, is a debatable point. The purpose of the deduction was to set aside a reserve to prepare for what we estimated would be a decline [fol. 6363] in the replacement cost of buildings, service equipment and machinery in the period 1931 to 1940. This money was transferred to reserve and held by the Company to take care of this contingency. The Company has the money. What we did was to try to estimate what would be the replacement cost of these plant additions during the period 1931 to 1940. It is an approximation in any way you view it. No one knows what the prices in 1931 to 1940 are going to be. It is an estimate, but present conditions seem

to indicate that maybe we were right in making that reserve and that there was some need for it. I would not say that we had such foresight in our organization that in 1924 we could foresee the conditions from 1931 to 1940, but we did feel that we were in a period of high prices, which were not going to continue. As a matter of fact, they kept on going higher after that than they were in 1924, and even after 1927 they were still higher.

We felt as early as 1924 that the prices then current, and those current for a few years subsequent thereto, were not stable prices, taking into consideration a long period of time. The reason was, we knew that after periods of great wars (take the War of 1812), there was a period of great activity for ten years, and another period of ten years of lower activity. After the Civil War you get exactly the same situation, and we are getting the same situation after the last great war. Those past experiences indicate that point of view.

There is a footnote on the bottom of Defendants' Exhibit D-28, as follows: "Indices furnished by Mr. Lincoln as follows: Buildings and permanent fixtures, 4-2-27; Machinery, 10-14-26, 10-19-26, 12-15-26". I have these indices with me.

(Which said indices were marked for identification as Defendants' Exhibit D-29).

In the year 1928, our records show a deduction from operating income for extraordinary depreciation of plant in the amount of $2,000,000, which is shown in the set-up which we furnished the defendants, marked Defendants' Exhibit D-19, in a separate column. In 1928, we made a study of the service life of our machinery. Prior to that time, we [fol. 6364] had been depreciating machinery 7½ per cent, but we were then in a period of great activity and making many improvements in our machine equipment, which made the machinery obsolete more quickly than had been our experience in the past. As a result of a study made by our Engineer of Manufacture, we found that the service life of machinery was really only ten years instead of fourteen years, so we changed our rate in that year, and also made a change for the previous three or four years, which aggregated a couple of million dollars. That amount we charged into the cost in that particular year, but it is really applicable to the previous years. In the light of our experience

at that time, we saw that we had underdepreciated on machinery. For the purpose of our Exhibits A-77, A-78, A-79 and A-80, we made that deduction in the year 1928, because, of course, we could not go back and undo what had already been done.

I have here a copy of the statement, which I furnished defendants, showing the net increases in plant during the fifteen-year period 1916 to 1930, inclusive.

(Which said statement was marked for identification as Defendants' Exhibit D-30.)

I also have a statement, which I furnished defendants, showing the details of reserve for depreciation of plant during the fifteen-year period 1916 to 1930, inclusive, and showing gross additions to reserve and write-offs.

(Which said statement was marked for identification as Defendants' Exhibit D-31.)

I did not make any study in 1928 to determine the relation of the cost index of additions in that year as compared to the ten-year period of 1931 to 1940, nor did I make such a study in 1929, nor in 1930. I do not know what the relation of each of these years is to the index for the period 1931 to 1940. We stopped these deductions at the end of 1927, because we felt that this amount of $8,200,000 was an estimated amount and an approximation, and that if we made further studies, it would not make very much difference in the amount that we would feel should be written off. Of course, I do not know how much of the additions made in [fol. 6365] 1928, 1929 and 1930, will be in existence during the period 1931 to 1940 as compared with the additions beginning with 1917.

In 1928, we made additions amounting to $7,687,000. In 1929, we made additions of $40,000,000, and in 1930, approximately $29,000,000, or a total of approximately $77,000,000 during this period of three years.

The total amount of the additions which we took into consideration in connection with the study leading up to the retirements from 1924 to 1927 appear on the details which we have submitted to the defendants, but are not summarized. That would be the additions from 1917 to 1927, as shown. They are gross additions.

On Defendants' Exhibit D-31, we show a reserve in 1923 of $34,000,000, or 60 per cent of the total cost of the plant.

In 1930, a reserve of $66,000,000 is shown, or 40 per cent of the book cost of the plant.

The reserve against tools, furniture and fixtures in January, 1923, amounted to approximately $15,000,000, and increased to approximately $29,000,000 by the end of 1930. The depreciation reserve for tools, furniture and fixtures stood at 100 per cent of the book cost for these items for each year from 1916 to 1922, inclusive; at 95 per cent to 98 per cent from 1923 to 1927, inclusive; and at 100 per cent in 1928 to 1930, inclusive. That depreciation reserve was built up out of the charges against operating income, in addition to the charges for the extraordinary reserve.

The extraordinary deduction in 1928 was of an entirely different character than the deduction for the period 1924 to 1927. The 1928 deduction had to do with the understating in previous years of the amount which should have been charged against operating income for the normal depreciation of machinery under the straight line method.

We have no studies for the years 1928, 1929 and 1930 covering the subject matter which was involved in the adjustments made in 1924 to 1927, and we made no such adjustments for those three years.

We have made a study of the value of the property in [fol. 6366] 1927. We then attempted to ascertain how our cost value of plant, as it stood on the books, would compare with our reproduction value less then existing depreciation. That is the practice that is followed, as I understand it, in telephone valuations. This was not made by outside appraisers, but by our own people; it was made by the Engineer of Manufacture on machinery, tools and fixtures, and by the Engineer of Plant on land, buildings and service equipment. It was carefully made by those individuals, not with the idea of proving it in Court, but for the purpose of satisfying ourselves as to what the result would be. It was gone into very carefully, and, as a result of that study, we ascertained that the amount of the reproduction value less existing depreciation was slightly in excess of the book cost of our plant at the end of 1927. I have sheets showing the details of that study.

(Which said sheets were marked for identification as Defendants' Exhibit D-32.)

The persons who made the study in 1927 on the reproduction value less existing depreciation of the plant were the

two individuals that I have named; that is, the Engineer of Plant and the Engineer of Manufacture. In addition to these two individuals, estimates were made by the Chief Statistician in connection with the study for extraordinary depreciation.

The persons who held these same offices in those years were the ones who had to do with the studies which formed the basis of the deductions in 1924, 1925 and 1926. There may have been a change in the individuals. I am not sure, for instance, when the Engineer of Manufacture took his office. It may have been the predecessor of the present Engineer of Manufacture who had to do with some of the studies. I think undoubtedly the person who made the valuation study in 1927 had knowledge of the study of extraordinary depreciation of plant. I think he also undoubtedly knew about the study, or the causes that led to the deductions in 1924, 1925 and 1926. Whatever individual occupied the office at that time knew about it. I cannot tell whether the particular individual who made the study showing that the [fol. 6367] valuation was above book cost in 1927 had knowledge of the previous studies indicating that the property would be worth less than book cost in 1931 without knowing the date on which the present Engineer of Manufacture took his office. I do not carry that in mind, but it was the Engineer of Manufacture and the Engineer of Plant who had to do with that.

The three sheets showing the valuation of 1927 are all that I know of. There may be further details in the possession of the individuals. The note on one of these sheets, "Observed depreciation", is intended to cover the existing depreciation of the plant at the time this study was made, in the amounts shown under each classification of plant, from an examination by experts. The term "depreciation", as used in this connection, is supposed to be synonymous with the per cent condition of the property at that time. What was intended by this observed depreciation is the per cent condition of the property, being the difference between what the condition would have been if it were new and what it actually was found to be by a physical inspection. It was not intended to take into account the balance of service life, obsolescence or inadequacy, but just observed deterioration.

Our depreciation reserve is built up through depreciation charges computed on the straight line method such as the telephone companies use. These depreciation rates take

into account, not only the factors determined by this observed deterioration or inspection, but also the questions of inadequacy, obsolescence, service life and salvage. Depreciation rates take into account factors other than those taken into account in determining what I call "observed depreciation."

We did not deduct in our original return for income taxes, as a deductible expense, any amount covering this extraordinary depreciation, but did deduct those amounts from operating income in the years in which they are charged in Exhibits A-77, A-78, A-79 and A-80.

In computing the return on the 1931 investment, I used the average book cost of plant, the average cost of equip-
[fol. 6368] ment, tools, furniture and fixtures; it was all based upon book cost figures without any deductions of any kind. Of course, all retirements actually made were deducted, but we took the book cost of plant as it stood, without deducting the depreciation reserve. Our policy on tools, furniture and fixtures has been to maintain a reserve of 100 per cent against the cost value of these items. That is, in effect, writing off approximately between 20 and 25 per cent of the face value each year. That is a rate commonly used by the electrical industry for depreciation on such items, which are of short life, and of questionable value other than for the purposes for which they are made.

Our policy with reference to machinery at the present time is to depreciate at the rate of 10 per cent per year on a straight line basis, except the rod and wire mill, where the rate is 5½ per cent. Prior to 1928, we used depreciation on this item of 7.5 per cent per annum; as I recall it, the depreciation rate has been 7.5 per cent for machinery during all of the time until we made the change to 10 per cent. On tools and fixtures, we, in effect, maintained a 100 per cent reserve, although in some years it is a little less than 100 per cent.

We have consolidated our income tax returns with the American Telephone and Telegraph Company since 1918, and in each of those returns has been included the tentative return that we made at the first of the year. Later on we have had examinations by field accountants of the Treasury Department, and, as a result of these examiners' inspection, we have made an estimate of what adjustment would be necessary in our return. We have settled with the Government for the period from 1916 to 1923.

"Q. And in that settlement there was a determination that the amounts of depreciation charged as a deductible expense for those years was excessive?

"Mr. Thompson: To which question the plaintiff objects.

"Mr. Goldstein: We are testing the policy that they are using, and that they say is currently used.

"Judge Wilkerson: Determined by whom?

"Mr. Goldstein: We are talking about the Internal Reve-
[fol. 6369] nue Department and the Western Electric. The Internal Revenue Department examined their books and their income tax returns from 1916 to 1923, and they settled with the Government.

"Judge Wilkerson: Do you know anything about that?

"A. As I understand, the situation is this: we have made our return on the basis, tentatively, at first, on exactly what we had written off the face of the account. I went down to Washington, I think about 1923 to 1924, and we consulted with the Treasury Department as to what they would allow for small tools and furniture and fixtures, they have allowed on machinery and on buildings and on service equipment, and they said, 'You have got to spread those over a longer period of time than you are doing it.' They said a four-year period on tools and a six-year period on furniture and fixtures. So what that does, what the effect of that is, your Honor, when we make large expenditures for tools, as we did in 1929, when we had the large profit in that year, it means the Government says, 'You cannot charge it all up, but you have got to defer it to 1931 and 1932, as a deduction of income', and we could credit 1931 and 1932 for those particular items we filed in 1929. Now, our practice in this respect I know is exactly the same as the General Electric Company has followed. That is, they write off—I don't know how they make their returns for the United States Treasury Department, but it seems to me what the Treasury Department regulations are, are not determining as to what is sound policy in the company.

"Mr. Goldstein: And then subsequent to 1923, you filed amended returns that conformed to this understanding of the Revenue Department?

"Mr. Thompson: To which question the plaintiff objects, that they conformed.

"Mr. Goldstein: When they show a comparison with other companies, and it appears that they are following one policy, and the other companies——

"Judge Wilkerson: Do you know what policy the other companies are following? Let's get down to that."

[fol. 6370] I cannot testify as to what policy each of the 88 companies follows in respect to taking into account the rulings of the Internal Revenue Department. I do know about the General Electric Company, but I do not know, of my own knowledge, about any of the other companies. I had the exhibit which shows the 88 companies prepared; it was prepared from Moody's and Poor's. I do not know whether there appears in Moody's and Poor's any statement as to any company that it has its depreciation policy in conformity with the Internal Revenue Department's rulings. I do not know, because I have not examined those individual reports.

The figures which I gave referred to taxable income and not to taxes.

(It was agreed by counsel that the following figures would be put into the record by the counsel for the defendants, as representing the difference between the depreciation charges allowed by the Government and those returned by the Western Electric, subject to check by the plaintiff: $364,000 in 1916, $1,031,000 in 1917, $591,000 in 1918, $239,000 in 1919, $1,400,000 in 1920, and $1,136,000 in 1921, the Western Electric Company being entitled to credits in the following years of $168,000, $44,000, and a debit of $77,000 in 1924.)

Our returns for 1924 have not been finally checked by the Government, and there is still some contention between us.

At the end of 1925, we sold certain assets to the Graybar Company, and a portion of our plant, which was carried on our books at approximately $897,000, as I remember. There was a depreciation reserve at that time of about $857,000 against that property. When the opening entries were made on the Graybar Company's books, the book cost of that property appeared in the amount of $897,000, with a depreciation reserve of only $443,000. The $411,000 difference between the reserve on our books and the reserve on the books of the Graybar Company was considered as a reserve against the stock of the Graybar Company. It had no effect whatsoever on the profits of the Company; we never took any profits on account of that reserve. We get dividends from the Graybar Company.

[fol. 6371] The sale of the Graybar Company was made for $9,000,000. When we sold the Graybar Company, we carried that on the books of the Products Company, which

is a wholly owned subsidiary of the Western Electric Company, at $8,500,000, which was after deducting certain values which we knew existed, but which we did not adjust to the reserve; that is, there was $119,000 for Habishaw receivables, which we had written off at 100 per cent previously, but which we recognized as good, and which were sold to the Graybar Company. There was about $275,000 of profit made on the sale of merchandise manufactured by the Western Electric Company that was still in the inventory of the Graybar Company. I do not think that has anything to do with the profit on the sale. In making up the account on the books of the Graybar Company, we had a reserve for bad accounts, which later proved to be excessive, as the Graybar collected more than the value we put in, so when you take all of these factors into consideration, what we did was to sell the Graybar Company for $9,000,000, which was approximately the cost to the Western Electric Company, regardless of all of these write-ups of plant or write-downs of plant, or anything of that kind.

When we sold the Graybar Company to the Graybar Management Company, the net amount for that investment was carried on the books of the Products Company, and amounted to about $8,500,000. This investment increased from $6,700,000, at January 1, 1927, to $8,500,000, at December 31, 1928, on the books of the Electrical Research Products Company by this means: the Graybar Company was owned 100 per cent by the Electrical Research Products, Inc., during the period 1926 to 1928, inclusive; therefore, the Graybar Company's undistributed earnings during that time were, in reality, the profits of the Electrical Research Products, Inc. This $6,700,000 did not take into consideration these undistributed earnings, so we wrote it up to $8,500,000 at the end of 1927, I think it was. This figure of $8,500,000 is the one I have mentioned before as the value of the Graybar Company as shown on the books at the time of [fol. 6372] the sale. I have explained what should be added to the $8,500,000 to bring it up to $9,000,000. In other words, we sold the Graybar Company at approximately what it stood on our books.

When the Graybar Company was organized in 1925, the Western Electric Company had $15,000,000 worth of stock, against which it had a reserve of $8,300,000; I think that is correct. In that $15,000,000 of stock, there was an item put on the asset side of the ledger of $7,500,000 for good will, so

that, in reality, we do not want to talk about $15,000,000 of stock; we want to talk about $7,500,000 of stock. The investment of the Western Electric Company in the capital surplus and open account of the Graybar Company at December 31, 1925, was $8,269,000. There was an open account there that the Western Electric Company had, in addition to the $6,700,000 which appeared on the Western Electric Company's books as the investment.

What I said was that at the time the transfer was made to the Graybar Company, on December 31, 1925, the investment of the Western Electric Company in the capital, surplus and open account of the Graybar Company was $8,269,000. For that investment the Western Electric Company received $15,000,000 worth of stock, which included $7,500,000 of good will. It received $15,000,000 of stock, but I am not saying anything about what it was worth. The Western Electric Company carried on its books at January 1, 1926, the $15,000,000 worth of stock and $1,446,000 on open account at $8,105,000.

This $8,105,000 was arrived at in this way: the investment of the Western Electric in the assets transferred to the Graybar Company at the close of 1925 (that is the time they were transferred to the Graybar Company and the Graybar Company was organized) was $8,269,000. There was deducted from that amount $283,000 on account of reserves for incorporation and advertising expense and for Western's profit on the merchandise inventory of the supply department. Then there was also included $119,000, representing the Habishaw receivables at that time. These items resulted in an aggregate of $8,105,000 as the net investment.

[fol. 6373] I gave no effect at all on our books to the $411,000 of revaluation through the depreciation reserve. We considered our investment just the same as if the Graybar Company had never been formed.

It was sold to the Electrical Research Products for $6,700,000 on January 1, 1927. The difference between this $8,105,000 and the $6,700,000 is this: in 1926, the Graybar paid its open account to the Western Electric Company of $1,446,000, and then there was a minor item of $41,000, which brings down the value to $6,700,000. In 1927, we revalued that investment to take into account the undistributed earnings of the Graybar Company of $1,800,000, making our total investment in the Graybar Company at the time of the sale, as carried on the Products Company's books, $8,500,000. I

have already given the explanation of the difference between that and the $9,000,000.

We transferred the same assets in March or April of 1930 to another corporation, called The Weco Corporation. That was transferred, as I recall it, without profit or loss to the Western Electric Company; I have not the figures in mind. It was transferred with the same reserve against it.

I want to correct my testimony in connection with the stock received from the Graybar Company. After the Graybar Company was sold to the Graybar Management Corporation, the only investment of the Western Electric Company, or of the Electrical Research Products Company, or of the Weco Corporation, in the Graybar Electric Company was preferred stock, which had been taken in part payment of the sale; the Graybar Company paid $3,000,000 in cash out of the $9,000,000 sale price. There has since been retired $2,000,000 of this preferred stock, so that at the present time the Western Electric Company, or the Weco Corporation (a wholly owned subsidiary of the Western Electric Company), owns $4,000,000 par value of the preferred stock of the Graybar Electric Company, against which there is no reserve on the books of either the Western Electric Company or the Weco Corporation.

[fol. 6374] I have been talking all the time about the investment that we have had, which is after the deduction of all reserves. What we did with reference to the depreciation and plant in forming the Graybar Company, and in selling it to the Graybar Management Corporation, had absolutely no effect on the profits of the Western Electric Company. If we should collect all of the proceeds of that $4,000,000 of preferred stock, so that our entire Graybar transaction would be reduced to cash, the $411,000 of the reserve would not be transferred to surplus. There was no profit for the Western Electric Company in this Graybar transaction. It sold for $9,000,000, regardless of write-ups which are put on the books and regardless of this good will item. It is complicated in this set-up, but the facts are that we sold the Graybar Company to the Graybar Management Corporation at approximately the book cost to the Western Electric Company, as shown on either its books or the books of its wholly owned subsidiaries.

$8,500,000 was the value at which the Graybar stock was carried on the Products Company's books prior to the

sale, and $9,000,000 was the sale price. This difference of $500,000 is made up of these items, roughly: $119,000 of Habishaw receivables, which we considered of no value in appraising the value of the Graybar stock at $8,500,000, but which had value at that time, but, as we were selling the company, we did not bother to write it up at that particular time. It also included around $250,000, representing profit on sale of merchandise which was in the stock of the Graybar Company. Those two items together make $369,000. The Graybar Electric Company, while it was a 100 per cent owned subsidiary of the Western Electric Company, had depreciated doubtful receivables, and they had at that time a 1 per cent reserve for contingencies of that sort. Now, the Graybar Company, in the next year, collected more than the value of the receivables at the beginning of the year. Adding all of these things together, you come approximately to $9,000,000.

The transaction with Graybar had no effect whatsoever [fol. 6375] on the profits of the Western Electric Company, or of the subsidiaries of the Western Electric Company, at any time, and it will have no such effect if we finally receive cash for the preferred stock.

We also made a sale of certain assets to the Bell Telephone Laboratories. The Bell Telephone Laboratories was organized in December, 1924, and began business January 1, 1925. The Bell Telephone Laboratories was organized for the purpose of taking over the research and development work of the Engineering Department of the Western Electric Company. Prior to the commencement of business on January 1, 1925, we had an appraisal of the property made by Horace S. Ely and Company, a real estate appraiser in New York of recognized standing. After they had appraised the property, they reported a value, which was less certain deductions necessary to be made on account of foundations that needed to be strengthened, of approximately $2,650,000. Now, this $2,650,000 was practically the same as the cost value of the property at 463 West Street, where the Bell Telephone Laboratories is located. In other words, the increase in the value of the land had offset the depreciation in the buildings, which were put up in 1897 and 1899, and had offset also the depreciation of the service equipment included in those buildings.

There were also other items, such as machinery and small tools, and furniture and fixtures, on which we did not get an outside appraisal, but came to an understanding with the officials of the Bell Telephone Laboratories as to a proper valuation. We carried the investment in plant sold to the Laboratories on the books of the Western Electric Company (that is, cost less reserve for depreciation) at a lower figure than the appraised and agreed-upon values, so that we had made a profit on the sale of about $2,100,000. This sale was made to the Bell Telephone Laboratories, whose stock was owned 50 per cent by the Western Electric Company and 50 per cent by the American Telephone and Telegraph Company. The profit on that sale has not been included in these exhibits.

[fol. 6376] The reserve on the books of the Western Electric Company for these items stood at $3,188,000 at the time of the sale. When these assets were transferred to the Bell Telephone Laboratories, that Company set up on its books a depreciation reserve of $1,096,839. After we sold the Bell Telephone Laboratories, we had a balance in the reserve, which was credited eventually to surplus. It was not put in the books as a current earning, and does not appear anywhere in these exhibits, but it increased the surplus.

The Bell Telephone Laboratories charges depreciation on its plant as part of the costs which are included in the billings to the Western Electric Company and the American Telephone and Telegraph Company. The book cost of the plant on the books of the Bell Telephone Laboratories, upon which these computations are made, is the value of the plant based upon this appraisal with the reserve standing against it of $1,000,000. In the computations that are made to determine the depreciation expense of the Bell Telephone Laboratories plant, there is taken into account the book cost only, and not the book cost less any depreciation reserve.

March 15, 1932.

(The following documents were identified by the defendants: Defendants' Exhibit for identification D-33, Explanation of Reserve carried on Western Electric Company's books as of December 31, 1926, against Investment in Stock of Graybar Electric Company, Inc. Defendants'

Exhibit for identification D-34, Statement of Assets and Liabilities of the Graybar Electric Company, Inc. Defendants' Exhibit for identification D-35, Book Value and Depreciation Reserve on Plant, on Books of the Engineering Department of the Western Electric Company as of December 31, 192[illegible], compared with the Book Value and Depreciation Reserve as shown by the books of the Bell Telephone Laboratories, as of January 1, 1925. Defendants' Exhibit for identification D-36, Explanation of Reserve on Books of the Western Electric Company as of [fol. 6377] December 31, 1926, against Demand Notes of Bell Telephone Laboratories.)

The documents identified as Defendants' Exhibits D-33 to D-36, both inclusive, are correct.

A portion of the $40,000,000 net additions to plant in 1929 was constructed by the Western Electric Company, and, in varying amounts, portions of the additions in each year from 1916 to 1930 were constructed by it. The portions of additions constructed by the Western Electric Company itself would be in the class of some machinery, and tools and fixtures, also some service equipment and buildings.

The construction of machinery, tools and fixtures done by the Western Electric Company itself are placed on the books at the cost of the labor, material and loading applicable thereto, on a standard cost basis. In the term "loading" is included all the factors of manufacturing cost, except the hourly productive labor cost and the material cost. There is included therein a factor of depreciation. There is included in each of the items manufactured by the Western Electric Company and placed in its plant accounts, a factor for the depreciation of the plant which has produced that item. If you are going to get a true cost of anything that is produced in our plant, you must, of course, include part of the cost of the plant that is used in order to produce that particular item. Those items of cost are added to the cost of the plant.

The present depreciation rates applicable to buildings are from 3 to 4 per cent. We use an average rate for buildings which takes into account the different construction of the buildings, and, as I recall, 3.5 per cent is the composite rate. On service equipment, the present depreciation rate is 5 per cent. On machinery, 10 per cent (ex-

cept the rod and wire mill, where the rate is 5½ per cent), and on tools, furniture and fixtures we maintain a 100 per cent reserve. In addition to depreciation expense, we also make charges against the operating revenues for changes and repairs, which is a maintenance proposition.

[fol. 6378] The document identified as Defendants' Exhibit D-37 is a correct statement of the amount of repairs and changes from 1916 to 1930.

On Defendants' Exhibit D-37 the changes and repairs are defined as follows: Changes consist of that work which changes the design of plant but does not increase its reproduction cost. Repairs consist of that work which restores plant to good operating condition but does not change its design nor increase its value above the cost of the equipment. This is intended to bring the property into good working condition.

In the 1927 study, which has been heretofore described, the reduction below 100 per cent condition was to bring the property down to an existing condition value. I should not think defects found by observed deterioration would be the kind of things cleared up through these items of expense, changes and repairs. As I have explained, the study of 1927 was a rough approximation of the conditions at the time, and I am not informed as to just how detailed an examination was made by the different individuals responsible.

I should not think that the kind of defects found by observation would be the kind of things that would clear through maintenance. I should think that the changes and repairs would bring it up to the condition it was in, and that this observed depreciation would be needed in excess of that.

I know that all of the 88 companies state the amount of their depreciation reserve in Poor's. I am not informed as to whether or not they state rates in every case or not, as I did not personally examine each of those companies individually. I do not know how many of them have their rates expressed in Poor's.

In determining whether a machine should be replaced by another, we take into account certain factors, such as whether there will be a saving produced by the one machine over another. In that connection, we also use a cost study to determine the relative return which will be

obtained from one machine as against the other. In these cost studies, we frequently use the sinking fund basis of depreciation. In determining the savings, we figure the present worth.

[fol. 6379] The column "Current Cost of Sales Before Interest and Expenses," on Defendants' Exhibit D-19, represents somewhere around 80 per cent of the entire cost of sales. The difference between the sales price and the current cost of sales, before interest and expenses, is represented by the column "Gross Profit."

Plaintiff's Exhibit A-78 shows that the Bell business in 1929 was $372,000,000, and Exhibit A-79 shows that for the same year the non-Bell business was $38,000,000. The classification of customers in effect prior to the formation of the Graybar Company is shown on Defendants' Exhibit D-38. This classification was also in effect when we owned the International Western Electric Company.

The changes in this classification made since the organization of the Graybar Company to date are as follows: the companies under the Supply Contract, which are shown on D-38 as Associated Bell Companies and Non-Associated Contract Companies, are now called Bell Companies and they are combined. The Non-Associated, Non-Contract Telephone Companies in D-38 include connecting independent non-competing and independent competing companies, and are now, in so far as they have no supply contract with the Western Electric Company through the licensee companies, customers of the Graybar Electric Company. The other domestic customers, which include in this exhibit central stations, electric railways, industrial plants and other large users, electrical contractors and dealers, other dealers, steam carriers, miscellaneous, and the Government (except the Government Department, New York), are now customers of the Graybar Electric Company, with the exception that some of our sales to the United States Government are made direct.

There is now another classification, which is not included in this exhibit. This new classification represents our sales to aviation companies in this country, which were not in existence at the time that this classification was made up. As to the classification on D-38 "Exports" (sales to International Western Electric Company, Incorporated, Delaware): we sold the International Western Electric Com-

pany in 1925 and our export sales now consist of sales to [fol. 6380] the International Standard Electric Corporation and to the Northern Electric Company, Limited, Canada.

The Electrical Research Products, Inc., was not formed until January 1, 1927. In 1929, it would be included as a customer of the Western Electric Company in a separate class by itself, under the distributors' class. It will now be included in the exhibit as a non-Bell customer.

The companies listed on Exhibit D-38, under the classification "Non-Associated Contract Companies", are what we now classify as connecting companies. They are either controlled by the licensee companies or have license arrangements with the various licensee companies, and guarantee a sufficient volume of business to warrant the Western Electric Company giving them licensee prices. The credit of these companies is guaranteed by the licensee companies. There are two other companies not owned or controlled with which this license arrangement is made. These companies are the Lincoln Telephone Company, located in Lincoln, Nebraska, and the Tri-State Telephone Company.

(Document furnished the defendants by plaintiff and entitled "Conditions under which we extend the benefit of the supply contract to Bell Connecting Companies" marked for identification as Defendants' Exhibit D-39.)

The Western Electric Company now manufactures approximately 20,000 different items, involving over 100,000 different parts. That is a very rough approximation. There are 20,000 combinations, which we call completed apparatus. These 20,000 combinations are, in turn, composed of combinations of 100,000 various items. When we manufacture a piece part, or even when we manufacture a piece of telephone apparatus, we do not know at the time whether it may be sold to a non-Bell customer or to a Bell customer. On the other hand, 90 per cent of all of our manufactures go to the Bell customers, so that our error, if any, is slight. It is impossible at the time of manufacture to know whether the piece being manufactured is going into a piece of telephone apparatus to be sold to a Bell Company or to a non-Bell Company.

[fol. 6381] "Q. I want to know whether after the sales are made at the end of a year, at the end of a month, or at the end of a week, or at the end of a day, and shipments

are completed,—can you or can you not tell how many of the piece parts manufactured by the Western Electric Company went into the items that were delivered, sent, during that particular day, that particular week, that particular month, or that particular year, to the Bell customers, and to the non-Bell customers? Will you answer that yes or no.

"The Witness: Why, it can be done, yes."

To do that we would have to set up a most elaborate organization to trace every item of telephone apparatus sold and break it down into its piece parts and find out just how many piece parts went into that particular telephone apparatus. It would mean an immense amount of clerical work that would have no practical use in the business whatsoever. It would be a waste of money to do it. It probably would cost millions and millions of dollars, and I mean millions and millions of dollars, to do it. I am not exaggerating.

Under present methods of operation of the Western Electric Company, we have no records that would enable us to determine that question.

The three sheets which I furnished the defendants, showing an analysis of total sales from 1916 to 1930, the analysis of sales to Bell customers from 1916 to 1930, and the analysis of sales to non-Bell customers from 1916 to 1930, are correct.

(The documents referred to were marked for identification as Defendant's Exhibits D-40, D-41 and D-42.)

In 1929, we classified our sales between three main classes of products. One of these classes we designated as supplies, which are all those articles not of our manufacture but which we purchase from others as purchasing agent for the Bell System, and any other supplies that we have purchased for sale to other than Bell System customers. The supplies cover both Bell and non-Bell customers.

Another main classification is called apparatus, which includes all of the sales of telephone apparatus manufac- [fol. 6382] tured by us to all customers, and which would include also the installation billing. The apparatus would also cover the special commercial products which we sell to the non-Bell customers.

In this discussion, when I refer to telephone apparatus, I will speak of it as telephone appliances, and when I speak

of special commercial products, I will designate them by that term.

The third main class is lead covered cable, which is also sold to both Bell and non-Bell customers, and is self-explanatory.

I furnished defendants a sheet showing the sales of special commercial products by the Western Electric Company.

(Which said document was marked for identification as Defendants' Exhibit D-43.)

On Defendants' Exhibit D-43, the various kinds of special products indicated therein are further subdivided into details as to the particular items. They contain maybe 40 or 50 different kinds of items. These products are sold mainly through Graybar and Electrical Research Products, Inc., but to some extent directly to aviation companies.

I have the reports for 1929 for the Hawthorne plant, known as Q202-1, 202-2 and 202-4.

(The documents were thereupon collectively marked for identification as Defendants' Exhibit D-44.)

"Mr. Goldstein: Now, Defendants' Exhibit D-44 for identification to Hawthorne—or of Hawthorne, shows, does it not, over 20 classes and over 100 sub-classes of items of appliances and of special commercial products which are sold, also the dollar sales and the varying amounts, and the varying kinds to Bell customers, to distributors, and then shows the standard cost of sales, is that correct?

"A. I do not know about the number, but that sounds——

"Q. I mean approximately.

"A. That sounds approximately correct."

A similar report was made in 1929 at Kearny, also. The plants other than Hawthorne also manufacture various classes of items, which are sold in varying amounts to various customers of the Bell System. There must be varia-
[fol. 6383] tions between the ratios each Bell customer buys in each year as to each kind of item manufactured by the Western Electric as compared to the ratio of that item for every other Bell customer. I do not know how much these variations are. I have no knowledge as to whether or not each Bell customer buys the same ratio each month of each item as every other Bell customer purchases during the same month, but common sense would indicate that

three must be variations. It is similarly obvious that the Illinois Bell, Chicago division, does not buy the same ratio each month, or each year, of each item purchased by every other Bell customer. The same is true of the State area of the Illinois Bell.

There are certain items that are sold exclusively to Bell customers, and some items that are sold exclusively to non-Bell customers, and there are certain items that are sold both to Bell and non-Bell customers. It is probably true that of the items that are sold jointly to the Bell and non-Bell customers, the ratio of Bell to non-Bell purchases of every item is not the same for any month, or for any year.

We have not kept any record to enable me to say whether each Bell customer has purchased in any one year, or over a period of years, the same amount of each of the items manufactured by the Western Electric Company as every other Bell customer. Some special commercial products are sold directly to non-Bell customers, which classify themselves. Some, such as sound pictures and aviation equipment, are are not sold to Bell customers at all. There are other special commercial products that are sold both to Bell and non-Bell customers. The ratio in which they are sold depends upon the needs of the customers.

The ratio of labor, material and overhead, which make up the cost of each item of telephone appliances and of special commercial products, is not the same as the ratio of labor, material and overhead that make up the cost of every other item of telephone appliances, or of special commercial products. The ratios change constantly from day to day, from hour to hour, from minute to minute, and it is an imprac- [fol. 6384] tical thing to attempt to get at the exact labor cost of any particular item. No manufacturing company ever attempts to do that sort of thing. It would be foolish for them to spend the money to do it, and so we have to adopt a system which will, on the whole, give us a true picture of the facts, which is all we need to carry on our business and conduct it efficiently.

If you take a long enough period, the ratio of the aggregate of labor, material and overhead making up the cost of the appliances as a class, will average themselves out with the ratio of the aggregate of the labor, material and overhead making up the cost of the special products as a class. The ratio as between those two classes of course varies.

Merchandise is sold by the Western Electric Company to telephone companies and other customers through the distributing houses, of which there are a great many, located in all sections of the country. The sheet which I have furnished defendants shows the locations of the factories and branches of the Western Electric Company as of December 31, 1930.

(Which said sheet was marked for identification as Defendants' Exhibit D-45.)

There have been some increases in these distributing houses, but substantially the same conditions existed in the years prior to 1930. There has been a gradual growth in the business from 1916 to 1930, which involved adding new distributing houses.

The prices which the distributing houses charge the customers are established by the General Commercial Manager. They are made on the basis of studies of standard costs, the difference between standard costs and selling prices that are in existence, and are made after a study has been made of the probable results for the coming year. For instance, whenever there is a big increase in the volume of business, I make a study as to what the probable results will be with that increase in volume of business, or, if there is a decrease in the volume of business, or any change, as a [fol. 6385] result of that study, with the prevailing price level, I will get an indication as to what the profits will be.

We have attempted at all times to make our prices reasonable to the Bell System customers and to make our profits reasonable. If we see by the increased volume of business that we are going to get a larger return on the investment than we should, then that information is passed on to the General Commercial Manager. He and I together make a joint recommendation to the President of the Company for a change in price downward in that particular instance. When the President makes his decision as to the action to be taken, the General Commercial Manager's job is to apportion that amount of reduction by classes of apparatus, which involves issuing a new price list, to be given to all of the licensee companies. The prices are related to what the costs are, or probably will be, of producing the classes of merchandise and the furnishing of a reasonable rate of return. That is what we attempt to do. It has a relation to the cost of the product.

The distributing houses get merchandise and services from the merchandising departments of Hawthorne and Kearny. They also get merchandise services from the equipment departments at Hawthorne and Kearny and from the installation divisions located at thirteen different places in all parts of the country. They are furnished with supplies from outside suppliers.

The merchandise departments of Hawthorne and Kearny furnish these distributing houses with Western Electric manufactured goods. I would say that probably all of the other items are shipped direct from the various factories throughout the country to the distributing houses or to the customer. The billing from the merchandising department to the distributing houses is at a price set by the Commercial Department in New York. That price, at the present time, is exactly the same as the price to the customer; that is, there is no difference in the price at the distributing houses and the price at the merchandising department.

[fol. 6386] The items of the equipment departments and installation divisions, which consist largely of labor, are billed to the distributing houses at cost, plus 6 per cent interest on investment. What we attempt to do in the case of installation is to get back our cost with interest on the investment. By "investment", I mean the amount of money that would be tied up in that particular operation of installing and equipment engineering. The equipment department has the same practice.

My recollection is that there is very little in the way of supplies stocked by the merchandise department, as it is much more economical to ship those supplies directly to the distributing house from the factories where they are manufactured, or to the destination where the merchandise is to be used. In general, the billing by the factories to the merchandising department of Western Electric manufactures and also the billing by the equipment department to the merchandising department is, in each case, made on the basis of the standard shop cost. The billing from the equipment department to the merchandise department is based on cost, plus an interest item of 6 per cent on the investment.

On the Exhibit D-19, the gross profit for Bell business is shown for the year 1929 as being approximately $49,000,000, and the gross profit for non-Bell business in the same

year is shown as being approximately $11,900,000. That, in each instance, is the difference between the sales and the cost of sales shown in the column immediately following.

As the billing is made to the customers during the year, we figure item by item the price of the article and the standard cost of that particular article. At the end of the year, when we take inventory, we make adjustments which are necessary because of inventory revaluations, and we make adjustments, also, to cover the difference between the aggregate of all the standard costs during the year and the actual amount of labor, material and loading that has been expended during the year.

I have explained why we cannot get actual costs, so that the necessity of some standard is clearly evident. These [fol. 6387] standard costs are based upon engineering or planning studies as to what a thing should cost at a particular time. That is checked by the actual conditions prevailing at the time, except that no adjustment is made for material. Material is taken at the standard material cost, and the total standard shop cost thus obtained is modified by any known changes in methods of manufacture which we may have in mind at the time. For instance, if we know that we have a new process which will reduce the labor item necessary to produce a certain quantity from 42 employees to 6 employees, that known item is taken into account in computing estimated standard costs for use in the prevailing period. That is the way in general and very roughly, that we make up our standard costs.

Our standard costs consist of three factors. We take the labor cost which the Planning Engineer thinks will be proper for that particular item at the prevailing rate at the time. Then, as I explained, when it has gone into manufacture, that is checked up in comparison with the actual cost. The Planning Engineer takes into account all the knowledge he can get as to what the real labor cost will be in the production of that article in the immediate future. The standard labor costs have as their basis the piece rate currently effective on the operation for which standard cost is being computed. The labor rate thus ascertained is embodied in our standard cost and continues as the basic labor rate until some future study is made and the experience is checked; then the labor rate is revised again and becomes the standard rate until some further check.

Those studies are not made for each particular week on the same day, or the same month. In a period of great activity we have at least 350 people who are doing nothing else but studying these conditions and finding out what the real standard costs are. It is a constant process with us, and from time to time, as we feel that the standard costs may be far away from the actual conditions, we make a complete study of all the standard costs, and use another level of standard costs in computing our basic gross profit. How [fol. 6388] often a complete revision of the standard basic labor costs is made depends upon the circumstances. The present standard costs have not been changed for some time. The cost conditions were so unstable that we would not know what to change to if we did change them. I think that the present figures have been in force for three years.

Before the last change, I think the preceding basic labor included in standard costs had been in force either one or two years, I am not sure just which. These changes would run in intervals of from one to three years, but I do not think it would be longer than a three-year period.

The next element that enters into the shop cost of each product is the price of the raw material. In connection with raw material prices we try to avoid in our cost keeping the effect of changes from time to time in raw material prices.

What we are after is to measure the efficiency of our manufacturing organization. If it is affected by changes in raw material prices, such as copper going up to 25 cents or down to 8 cents, we do not get the gauge that we want. For this reason copper is included in our present standard cost at 15 cents. I think the current quotations in the newspapers indicate what we are actually paying for copper; I think it is around 6¼ cents. I think we are buying some copper, but very little; we have a stock. The 15 cents standard copper price has been in use during this three-year period. I think that it is probably true that it has been in use since 1925, but I am not sure. I am not sure just how long the present standard lead price has been used, but it has been for some time.

These figures for cost of sales before interest and expenses on Exhibit D-19 include the total actual labor cost during the year as shown by our payrolls. They also include the actual cost of material for the year and the total actual overhead during the year, and proper adjustments for inventory revaluations.

The standard cost of manufactured goods sold, telephone apparatus and special commercial products, is the same whether sold to a Bell customer or a non-Bell customer, and, [fol. 6389] therefore, requires no allocation whatsoever. The installation costs are direct, because they are done on a particular job. In addition to those two items of cost, there are development costs, distribution costs and Federal taxes. The current cost of sales before interest and expenses shown on Exhibit D-19 is the sum of labor, materials and overhead, the materials being subject to the customary adjustments that are made in taking inventory of a manufacturing concern. My reference to labor and material is to the labor and material of the plant as a whole.

Our books do not show the actual labor, the actual material and the actual overhead that go into each of the items that are sold to the Bell and non-Bell customers.

We have standard costs and at the end of the year we make an adjustment between the actual labor expenses during the year and the item of standard labor which was used in the standard costs. The standard cost system is simply a tool and a mechanism that we use during the year to get approximate figures, which are adjusted at the end of the year to the actual labor that we have expended and the actual material at cost prices and the actual overhead, all adjusted for inventory revaluation.

In arriving at the cost of sales to the Bell customers we proceeded as follows: we took all the standard costs of all the items mentioned which make up the Bell business, and a portion of the adjustment to arrive at the actual cost which I have used in my exhibits. The method of allocation of gross profits and adjustment between Bell and non-Bell business requires the use of standard costs. My allocation is dependent upon the accuracy of the adjustment from the standard labor and material and overhead to the actual material and labor and overhead experienced during that period, and the extent of the adjustment is a vital factor in my exhibits.

To arrive at the Bell profits we have to make an adjustment between the actual price to the Western Electric Company of copper for the year 1929, and the basic copper price which we used in making up the material. Similarly, we have to make the same kind of adjustment for each of the [fol. 6390] years from 1916 to 1931. In order to determine the amount of the adjustment, we have to know how much

our basic copper price was during each year, and how much the actual price to the Western Electric Company was for that year.

I know what the actual price of copper was during each of the years 1916 to 1931.

At the end of the year we aggregate the standard costs for overhead for all of the items of the year and arrive at a single adjustment, which is spread over the Bell and non-Bell business according to the standard cost of each class of apparatus, i. e., telephone apparatus, cable and supplies. There is included in the standard cost for overhead all of the items of manufacturing expense, except labor and material. That would include salaries paid to supervisors, changes and repairs, clerical help, depreciation, insurance items which enter into the rent, and so on. The overhead that goes into each item as manufactured enters by virtue of what we call "loading," and that loading is a percentage of labor hours. The basic loading for overhead is changed as conditions change and warrant different rates; that depends upon the judgment of the Manufacturing Department. I would say that they are changed every year or so, but I am not sure of the exact length of time that elapses. It is frequent. I do not think that it would be two years at any time.

When we make a change in our standard cost for a particular item, it is for the purpose of bringing the assumed figures for labor, material and overhead in closer proximity to the actual conditions as we find them at the time when we make our study. It is based upon factors which we expect to exist in the immediate future.

We arrive at our actual shop cost by making certain adjustments to our basic gross profit figures.

The following are the items of expense incurred during the year 1929 and allocated between Bell and non-Bell business upon the basis of standard shop cost: development expense (which amounted in that year to approximately $11,000,000, of which amount $8,910,000 is allocated to Bell [fol. 6391] business and $2,114,000 to non-Bell business), merchandising, and general expense. The allocation of Federal taxes does not depend upon shop costs, nor does interest received, except in part perhaps. The adjustments made to arrive at our actual gross profits from our basic gross profits are spread between Bell and non-Bell customers on the basis of standard shop costs.

We have allocated a portion of our plant on the basis of usage as determined by standard shop costs. We apportioned the plant on the basis of shop costs, because shop costs is our method of arriving at the use of the plant. I think almost all of the plant account was allocated on the basis of usage as determined by shop costs. A part of the inventory was apportioned between the investment in Bell and non-Bell business on the basis of standard shop costs. Cash and payables are allocated on the basis of standard shop costs of sales and the purchase of plant items.

Some part of the distribution cost would be direct costs. Those are expenses in connection with our distributing houses.

Direct costs of distribution would come under the merchandising expenses. The plant account, to a certain extent, was apportioned on the basis of standard shop costs and likewise the inventory and a portion of the cash and payables.

The cost of sales shown in the exhibits is the total cost, and includes shop cost and all other items. Federal taxes are allocated on the basis of the earnings in each class of business, after we have ascertained them through the method which I have described.

The larger part of the plant account is apportioned on the basis of the standard shop cost of sales.

The unadjusted basic gross profits of the Merchandising Department for the year 1929 were $56,899,000. This represents $47,426,000 for telephone apparatus, $8,191,000 for lead covered cable, and $1,282,000 for supplies.

There is a gross profit on local shop manufactures of $321,000, which I have allocated all to telephone apparatus. There is a basic gross profit in the Installation Department of $105,000, which represents the gross profit and remuner-
[fol. 6392] ation on the direct expense materials. The entire $105,000 has been allocated to telephone apparatus. Profit on sale of connecting blocks of $64,000 is allocated to telephone apparatus. Miscellaneous profits and losses, totaling $6,000, allocated $2,000 to telephone apparatus and $4,000 to lead covered cable. (The witness agrees to prepare a statement showing all basic gross profits for year 1929 and submit same to counsel for the defendants.)

In connection with "the Manufacturing Department surplus," there is an item called "Reduction to actual cost of productive labor and manufacturing expense, December

31, 1928, Hawthorne Manufacturing Department,. $1,142,000''. This was allocated $1,095,000 to telephone apparatus and $47,000 to lead covered cable. It represents the difference between the standard cost of labor and manufacturing expense that was used in these standard cost studies to get at the basic gross profits, and the actual cost of productive labor and manufacturing expense applicable to the opening inventory. The cable was manufactured in an entirely separate shop and practically allocates itself.

In the same column and under the same sub-head appears the same thing for Kearny, Philadelphia Instrument Shop, Engineer of Manufacture, Hawthorne Merchandise Department, Kearny Merchandise Department, and Broadway, making a total reduction to actual cost of productive labor and manufacturing expense as of December 31, 1928, of $4,498,000, which was divided $4,335,000 to telephone apparatus, $160,000 to lead covered cable, and $3,000 to supplies. This adjustment is in different amounts for each of the manufacturing departments and for the merchandise departments. The Hawthorne Merchandise Department had an adjustment of $1,408,000; the Kearny Merchandise Department, $793,000; the Philadelphia instrument house, $51,000; the Kearny Manufacturing Department, $374,000; and the Hawthorne Manufacturing Department, $1,142,000.

''Shop surplus on production'' represents the difference between the standard costs and the actual costs of items that are delivered to our merchandise departments. It is what we call our output surplus account. It is the differ- [fol. 6393] ence between the standard costs used in the course of manufacture and the actual costs at the end of the year. In order to make the adjustment, we have designated it as ''shop surplus on production''.

The net aggregate of these adjustments for the year 1929, for all of the plants, including headquarters, was $2,238,000, which is shown in the red. This red figure indicates that instead of a surplus there was a deficit, or, in other words, that the actual costs were higher than the standard costs for the entire organization.

The Hawthorne Manufacturing Department shows an adjustment of $5,353,000 in the black, indicating that our standard costs were too high so far as Hawthorne was concerned. At Kearny, the adjustment of $6,178,000 is the other way, showing that the standard costs were too low

at Kearny. The net amount of all the adjustments for the year 1929 was $2,238,000.

The standard shop costs were too low on telephone apparatus, but too high on lead covered cable by $351,000. At Hawthorne, the standard cost was too high by $4,575,000 for telephone apparatus, and too high for lead covered cable by $804,000, but too low for supplies by $26,000. At Kearny, the standard costs were too low for telephone apparatus by $6,636,000, and too high for lead covered cable by $458,000.

The statement at the end, on total surplus incurred, is the difference between the figure of $2,238,000, representing the deficit, and the figure of $2,859,000, covering the item "Eliminating reserve for moving expenses to be incurred in 1930", and amounts to $621,000. The moving expense is supposed to cover the expected cost of major moves that were anticipated at the end of that year. The major moves anticipated were in all plants. I have not the detail or anything to indicate how much of that was for Hawthorne, Kearny, Point Breeze, Philadelphia Instrument Shop, Queensboro Works or Headquarters.

There is an entry in connection with the same adjust- [fol. 6394] ment, entitled "Manufacturing Department reserve for moving expenditures in 1930", which is in red by the same number of dollars that it is in black in the Manufacturing Department surplus. That is to eliminate from this item of surplus in the shop the reserve for moving expenses. We did not incur this expense in the year 1929; it says "to be incurred in 1930". It would enter into our figures in 1930, depending on whether we made a reserve at the end of that year.

The next items are some slight adjustments as follows: "Reduction to actual cost of productive labor and expense, December 31, 1929; Philadelphia Instrument Shop, $25,000, which was allocated to telephone apparatus; Kearny Merchandise Department, $50,000, allocated to telephone apparatus". This is our estimate of how much lower actual costs were than standard as they apply to the ending inventory.

There is an item "Change to 1930 bulletin for productive labor and expense loadings of December 31, 1929 inventories", which aggregates $3,882,000, allocated $3,860,000 to telephone apparatus, $21,000 to lead covered cable, and

$1,000 to supplies. When we change our bulletins that, of course, affects the inventory at the end of the year and in order to get the profits for the year, we have to take into account the effect of using the new bulletin in inventorying at the end of the year. By a bulletin cost we mean a standard cost. A bulletin is simply a list of various items, showing the standard cost of each item. When we make a change of standard costs used in our accounting system, that means that if the bulletin at the end of the year at which we price our inventory is higher than the old bulletin, in order to get at the profits for the year we have to take into account the difference between the two bulletins as it applies to the inventory. The adjustment is for the bulletin cost, which is made up of three items, material, overhead and labor, and represents the changed conditions from what the former bulletin cost represented. That is, it is a change in the bulletin cost of the particular items manufactured. The adjustment figures show the effect of the [fol. 6395] difference between the figure resulting from applying to the inventory the old bulletin costs and the figure resulting from applying to that same inventory the new bulletin costs.

This adjustment shows the effect of the changes in each of the plants, and in varying amounts, as follows: Hawthorne Manufacturing Department, $1,111,000, divided $1,053,000 to telephone apparatus, $57,000 to lead covered cable and to surplus $1,000; Kearny manufacturing plant, $606,000, allocated $638,000 to telephone apparatus, $32,000 used on lead covered cable; $560,000 in black for Hawthorne Merchandise Department, of which $559,000 was allocated to telephone apparatus; $979,000 for Kearny Merchandise Department (which was the net adjustment representing a black figure, $986,000 on telephone apparatus, and a red figure of $7,000 on lead covered cable); there was an adjustment of $532,000 for Broadway (distributing houses), of which $531,000 was allocated to telephone apparatus. The total adjustment for the effect of the bulletin charge was $3,882,000, and was divided $3,860,000 to telephone apparatus, $21,000 to lead covered cable, and $1,000 to supplies. This all represents the effect on the 1929 inventories of the change in the bulletin, and does not involve the process of going back to the first of the year.

That disposes of the Manufacturing Department surplus, which had a net adjustment of $1,162,000. There was a

surplus for the total plant. This is made up of a surplus of $481,000 for telephone apparatus, $862,000 for lead covered cable, and a deficit of $181,000 for supplies.

The general rule is that we apportion these adjustments of the Manufacturing Department surplus on the basis of the total aggregate standard costs of each class of apparatus: telephone apparatus, cable and supplies.

"Current under-run" represents the difference between the standard cost of material and the actual purchase cost of material to the Company. The current under-run is when the actual cost is under the standard, and is shown in black figures. For example, if we have a standard cost of 15 cents for copper and we buy copper for 8 cents, the [fol. 6396] 7 cents difference is a current under-run and is shown in black. When we have an under-run, the standard assumed cost of material was too high. Whenever there is a black figure in connection with this adjustment, it means the standard cost was too high, and it is called an under-run. A red figure is called an over-run, and means the standard cost of raw material was too low.

The first item of adjustment for current under-run is "Adjusting raw material from 1929 standards to actual costs" for material on the December 31, 1928 inventory. The adjustments under this item are as follows: in the Manufacturing Department, $797,000 total, of which $706,000 was for telephone apparatus, $98,000 for lead covered cable, and $7,000 in the red for the supplies. In the Merchandising Department, the total under-run was $486,000, made up of $436,000 for telephone apparatus, $56,000 for lead covered cable, and $6,000 in the red on supplies. For Broadway (distributing houses), the total of $215,000 is made up of $139,000 for telephone apparatus and $76,000 for lead covered cable. The total adjustment was $1,498,000, made up of $1,281,000 for telephone apparatus, $230,000 for lead covered cable, and a red figure of $13,000 for supplies. We arrived at these adjustments in the following manner: we currently kept a record of the cost of our purchases and compared those costs with the standard costs of the materials. We know from month to month exactly what the current under-run is on all our purchases, and this is the adjustment which arises out of the information which we have currently kept.

What I have spoken of before is the adjustment of the raw material prices as they apply to the beginning inven-

tory. The next item, "current under-run incurred", is in connection with scrap sold and used and Class B and raw material and miscellaneous items purchased during the year. The adjustment of "current under-run incurred" aggregates $772,000 for all of the plants and shows that the standard costs were too high. This aggregate figure is composed of $2,459,000 for telephone apparatus where [fol. 6397] standard costs were too high, and $1,115,000 for standard costs that were too low on lead covered cable.

If I mention "estimates" while speaking of this subject, I have in mind the estimates that enter into shop costs; I mean standard shop costs.

The term "Class B" means material that is returned from the telephone companies to be disposed of by the Western Electric Company as scrap.

The total adjustment for the item "difference between standard value and shop cost of raw material produced" is $117,000 in the red, and shows that the standard shop cost was too low. Of that total figure, $111,000 is for telephone apparatus and $6,000 is for lead covered cable.

The allocations of these over-runs and under-runs between telephone apparatus and lead covered cable were determined in exactly the same way as I have described before. That is, on the aggregate of the standard shop costs. The allocations were based on total costs, one as against the other. Of course, the under-runs for lead covered cable go directly against cable. The allocation between Bell and non-Bell customers is on the basis of shop cost of sales of telephone apparatus and cable.

Under "Change in standard raw materials and scrap prices, 1929 to 1930 bulletin, on December 31, 1929 inventory" is shown, in the Manufacturing Department, that the standard costs were too high by $752,000. This is made up of an under-run of $768,000 in telephone apparatus, an over-run of $17,000 in lead covered cable, and an under-run of $1,000 in supplies. In the Merchandise Department, the standard costs were too high by a total of $58,000, composed of an under-run of $61,000 for telephone apparatus and an over-run of $3,000 for lead covered cable. The determination of this was a matter of computation. It is for the purpose of making adjustment for the two bulletins, which are different. These bulletins were bulletins of standard raw material prices. When you get the stand-

ard, it is different, so you have to get a different item to compare the actual with.

[fol. 6398] The next item is "Adjusting raw material from 1930 standards to actual cost." Under that heading, the Manufacturing Department shows a total figure of $346,000 in red. This is made up of a black figure of $58,000 for telephone apparatus and a red figure of $325,000 for lead covered cable, and a red figure of $79,000 for supplies. This means that in the particular year the standard prices for materials used in lead covered cable in the ending inventory were $325,000 lower than the actual prices and telephone apparatus standard prices were $58,000 higher than the actual prices paid. The Merchandise Department shows a total figure of $55,000 in red. This is made up of a black figure of $38,000 for telephone apparatus, a red figure of $42,000 for lead covered cable, and a red figure of $51,000 for supplies.

If the figure is in black, it means that the standard cost is higher than the actual cost. That is, there is an under-run. The effect of an under-run would be to increase the basic gross profits. Wherever there is a red figure, the effect would be to decrease the basic gross profits. These effects, however, would be opposite when applicable to ending inventories.

The next item is "Effect of current under-run on beginning and ending inventories at engineer of manufacture not considered in M 2.01-5 report, but included with inventory revaluations." Here are balancing figures of $22,000 each way for apparatus and lead covered cable, resulting in a total of zero.

The total adjustments for the entire plant in the year 1929 resulted in a $1,849,000 under-run. That is, the adjustments increased our basic gross profits by $1,849,000. For telephone apparatus the current under-run was $2,793,000, increasing our basic gross profits for apparatus by a like amount. On the other hand, the effect of current over-run decreased the basic profits for lead covered cable by $488,000 and for supplies by $456,000.

"Q. And in order that we can get the picture clear at this point, the Manufacturing Department surplus, which we discussed before—the adjustment resulted in an increase for all of the plants of basic gross profits by $1,-

[fol. 6399] 162,000, divided between telephone apparatus, $481,000, lead covered cable, $862,000, and a decrease in profits, basic gross profits for supplies, of $181,000, is that correct?

"I am now looking at Manufacturing Department surplus, that we have discussed before, and I want to get the significance of those adjustments.

"A. Well, the adjustment to which you refer is the adjustment of the total bulletin effect surplus applicable to sales.

"Q. That is right.

"A. Total sales, yes."

The next series of adjustments is known as "Inventory revaluations and reserves" and totals $6,625,000 in the red. The effect of these adjustments is that the basic gross profits have been decreased by $6,625,000, in the aggregate, except, of course, that the figure includes that moving reserve, which is in and out. The adjustment of $6,625,000 for the entire business is composed of an adjustment to decrease the basic gross profits on telephone apparatus by $5,945,000, on lead covered cable by $627,000, and on supplies by $53,000.

"Effect of eliminating overtime (except normal) and minimum earnings allowances" represents that part included in our standard cost of merchandise which was on the inventory covering overtime, except the normal overtime, and also represents that part included in our standard costs covering the difference between the minimum earnings that we guarantee our employees and their piece rate earnings included in our standard costs, and those are all in the red for each of the classifications, and are in varying amounts for the plants, and for the merchandising departments. The total of this sub-division is $403,000, in the red (that is, a decrease in basic gross profits), and is made up of $401,000 for telephone apparatus and $2,000 for lead covered cable.

The adjustment for "Effect of eliminating productive labor increment loading except overtime and minimum earnings allowances" totals $724,000 in the red, divided between telephone apparatus $717,000, lead covered cable, $6,000, and $1,000 for supplies. In our standard cost is [fol. 6400] included an item called increment labor. Increment labor includes the amounts paid to our employees

while not working because of enforced absences for military and jury duty, vacations, pension accruals, sickness, and so forth. Now, this adjustment is to take out of our inventory that portion of those items which was spent during the year applicable to the inventory. The amounts vary between the plants and vary between the merchandising departments, and the instrument shops, and are divided between telephone apparatus and lead covered cable as stated.

The adjustment "Effect of eliminating factors in standard shop cost to recover: manufacturing development, including cost reduction; vacations; enforced absences, benefit payments; accrued service pension liability; general moves; rearrangements and reconstructions; expense of process storerooms not incurred; indeterminate losses" explains itself. The adjustments vary as between plants and between merchandising departments and are all decreases of basic gross profits.

The adjustments for "Inventory revaluation and reserves" are divided between Bell and non-Bell business, in general, on the basis of standard shop costs to sales. There is a direct allocation between telephone apparatus, lead covered cable, and supplies.

"Q. But the allocation between Bell and non-Bell, and between specialty products—the appliances and the specialty products is on the basis of the aggregate shop costs of each class of item?

"A. That is right."

The next adjustment is for "Effect of eliminating factors in shrinkage for loss on reduction to fair market value and errors in figuring" and the total adjustment for this item results in a decrease in the basic gross profits of $326,000, made up of a decrease of $318,000 for telephone apparatus and of $8,000 for lead covered cable. This adjustment is self-explanatory. There is a factor in the standard cost to cover it, and when we come to inventory, we feel that we should not include in it any item put in the [fol. 6401] standard cost to cover errors. We include it in the standard cost and then take it out as to the inventory valuation.

The next adjustment is for "Effect of eliminating preliminary packing, reel and spool expense, and cable stub

details." The total effect of this adjustment is a decrease in the basic gross profits of $104,000 ($73,000 for telephone apparatus and $31,000 for lead covered cable).

The next is "Effect of eliminating loadings on commercial piece parts." The total adjustment here is a decrease in the basic gross profits of $26,000, all attributable to telephone apparatus.

There are other adjustments for the following: "Effect of reduction of raw material from actual cost to market prices where lower"; "Reduction of non-bulletin items to bulletin cost levels"; "Reduction of local shop costs to Hawthorne cost level"; and "Effect of reduction to fair market value." In each of these cases, except one, there are decreases in the basic gross profits for telephone apparatus, supplies, and lead covered cable. The amounts of the adjustments vary between the manufacturing departments of Hawthorne, Kearny, and Point Breeze, and also vary between the merchandising departments. The allocation of these adjustments between telephone apparatus, lead covered cable, and supplies is made by direct allocation, but the apportionment between Bell and non-Bell, or between telephone appliances and specialty products, and between non-Bell appliances and Bell appliances is made generally on the basis of the aggregate shop costs of each class.

The next adjustment is "Eliminating factors in 1930 bulletin for preparation expense at Point Breeze and Kearny not incurred in 1929." This results in a total decrease of $375,000 in the basic gross profits, divided $352,000 to telephone apparatus and $23,000 to lead covered cable. Obviously, as these expenses were not incurred, they should not be in the inventory.

The next adjustment is "Effect of reduction of excess shipments on open switchboard jobs to cost level." The result is a $22,000 decrease in basic gross profits.

[fol. 6402] The next is "Adjustment for redivision by merchandise classes of manufacturing operating surplus, inventory revaluations, and current under-run," the total effect of which was a $1,000 increase in the basic gross profits. This was made up of an adjustment of a $40,000 increase for telephone apparatus and a $39,000 decrease for lead covered cable.

The next is "Manufacturing department reserve for

moving expenditures in 1930," which we have taken out for the purpose of inventory valuation. However, the moving reserve does not in any way affect the valuation of our inventory.

These adjustments were also divided between telephone apparatus, lead covered cable, and supplies by direct allocation. In general, they were apportioned as between specialty products and telephone appliances as a class on the basis of aggregate shop cost of sales of each class, and as between telephone appliances sold to Bell and non-Bell customers on the basis of aggregate shop cost of sales of each class.

Line 51, on page 2 of the report which we have just been discussing, shows the total basic gross profits for the year 1929, to which all of these other adjustments are made. The total basic gross profit in the Merchandise Department is $54,807,000; this is obtained by making certain adjustments to the figure of $56,899,000, with which we start. These adjustments are shown on page 1, the first one being "Reversal of 1928 claim entries." There are about ten miscellaneous small items of adjustment shown there.

There is one adjustment here, entitled "Unexplained differences," amounting to $1,805,000, all allocated to telephone apparatus. In a big manufacturing organization, such as the Western Electric Company, we use certain tools during the year in order to ascertain the approximate results; and, at the end of the year, we get the actual figures from taking the actual inventory, and then explain the difference between the actual and the expected, so far as we can. We find finally that there are some items we cannot explain, and it so happens that, in this particular year, the difference we cannot explain amounts to $1,805,-[fol. 6403] 000. Of course, in a big manufacturing plant there are losses from clerical errors, and so forth, that come in. This $1,805,000 is all allocated to telephone apparatus, because that is where the intricate process of accounting occurs and is necessary. Lead covered cable is simpler and the accounting more readily obtained without any possibility of error. The adjustment was then allocated between sound pictures and telephone appliances on the basis of the aggregate shop costs to sales of each class and between Bell and non-Bell customers likewise on the basis of aggregate shop costs of sales of each class.

There is another item for the distributing houses, entitled "Other adjustments to profit (including unexplained difference)", totaling $634,000, $343,000 of which was allocated to telephone apparatus, $34,000 to lead covered cable, and $257,000 to supplies. This is another one of those items that we cannot explain, but that certainly crept in; it is inherent in any accounting system that errors of this sort would occur. This adjustment was allocated between telephone apparatus, lead covered cable, and supplies on the basis of the distributing houses' sales of stocked materials. Of course, on supplies there are no shop costs and there the cost would be the purchase cost of the supplies. Lead covered cable was allocated on the basis of shop cost of sales. The adjustment was apportioned between Bell and non-Bell on the basis I have already discussed. As between sound pictures and telephone appliances, and as between Bell and non-Bell, the adjustments were on the basis of aggregate cost of all sales of each class to each class of customer. Whenever I use "cost of sales," it is synonymous with standard shop cost of sales.

Under "Broadway" is an adjustment "Effect of change in reserve to distribute equipment gross profits in proportion to billing of installation." The effect of this adjustment was to decrease the basic gross profits by $618,000. We attempt to equalize profits on the total billing of switchboard equipment to our telephone companies. Of course, we ship the material first and it carries the larger [fol. 6404] profit. After the material is shipped, there is the installation to be done, which is at a relatively lower profit (practically cost plus 6 per cent). In order to apportion properly in each year the profits on the total billing (although the shipment has been made and the title passed on the apparatus), we make a reserve, so as to only put into that particular year the profits applicable by using the average percentage rate.

The documents marked for identification as Defendants' Exhibits D-46 and D-47 show the basis of valuation of inventory and method of arriving at merchandise inventories as shown in the stockholders' reports as of December 31, 1915 and as of December 31, 1930.

Exhibit D-47 shows that we had, on December 31, 1930, an inventory, figured at standard costs, of $114,000,000, and

that when we got through with our adjustments, we ended with an inventory valuation, which we used for the purpose of determining profits, of $86,000,000, or net adjustments decreasing the value of the inventory by $28,000,000. The $114,862,000 with which we started represents our inventory at the standard cost level in the manufacturing and merchandise departments and at the price level to the customers in the distributing houses. We first made a reduction to get to the standard cost level at the distributing houses from the price level. That $114,000,000 is after that reduction. I have it in mind that we started from $116,000,000. That adjustment does not appear on the exhibit.

The approximate $116,000,000 was reduced by a million or two million dollars to bring the distributing houses' new material inventories down to the standard cost level at the factory, so we have a standard cost inventory valuation at the factory of $114,000,000.

Then the $114,000,000 is reduced by $4,551,000, to reduce raw materials and raw material content standard cost to actual cost. That means that the inventory at standard cost was $4,551,000 more than our actual cost. We then reduced our cost to market, if lower than cost, which decreased the value by another $1,720,000. This reduced the inventory of materials to cost or market, whichever was lower.

[fol. 6405] We then reduced that cost or market, whichever is lower, to fair market value. This involved another $5,000,000 reduction in the value. This represents the amount which, from our experience, we considered necessary to write off because of the factor of having stocks in excess of normal requirements. In our business we have rapid changes in design of manufacture. The designs are made by the Bell Telephone Laboratories and are placed in the shop; the decision as to whether they shall be put into manufacture is dependent upon whether the Bell System, as a whole, is to be the gainer by putting them into manufacture, rather than whether it means a loss to the Western Electric Company or not; so we have a distinct hazard in being required to junk or scrap stocks of material, which, from a System standpoint, will be of advantage, but which, from the Western Electric Company's standpoint, will be of distinct disadvantage. Bearing that in mind, we have set up certain standards or relations; for six months stock, we show no depreciation; beyond six months, we have varying rates, depending upon the length of time it would take us to

dispose of that stock on the basis of its expected use or sale. In addition, this includes, also, stock that is obsolete, or of poor physical condition. This $5,000,000 is supposed to take care of this contingency. For stock on hand in excess of six months' requirements, we apply varying percentages of depreciation, depending how long over six months we expect to have had it.

We start to depreciate the inventory because a portion of that inventory will have to stay on hand beyond January 1, or may be scrapped and never used. Of course, there is a factor for the fact that it is not going to move very rapidly. The normal rapidity that we use in order to determine how much we should take is usually a rapidity of inventory for six months from January 1. Of course, under present conditions, we have to normalize to some extent; we have to say, for instance, that in 1931 we do not think the division we had for the first six months was perhaps what ought to be expected over a normal period of six months. That may be up or down. The reduction for market value at the end of 1930 [fol. 6406] amounted to $5,000,000. We figured that any merchandise that was going to be on hand longer than six months was worth less to us from a balance sheet standpoint. The same thing was true with specialties. We considered what the expected demand would be on those by our customers, both Bell and non-Bell.

The principle of this is to get at the fair value of the merchandise. We do not want to overestimate; we do not want to show in our balance sheet a value for merchandise in excess of what it really is worth. We do not want to tell our stockholders that we have our merchandise at a higher value than it is worth.

The turnover of our entire investment on telephone apparatus is about once a year. Of course, that includes plant and other items, and I would say that on the average six months is probably the amount of stock that we normally ought to have for telephone apparatus business.

This study was made item by item on the inventories. On that basis we made our adjustments reaching $5,000,000.

The next adjustment is a decrease of $10,651,000 in the value of the inventory as "Reduction to fair market value on returned materials and special stocks (charged to deferred receivables)". This is of a slightly different character. We receive returned goods from the telephone companies and credit them with these returned goods at the current selling

price. When we inventory these items, however, we inventory them at what we think they are worth. This $10,000,000 represents the difference between the price allowed the telephone companies and what we think that inventory should be valued at (it is over one-half of the current price with which we credit the telephone companies and is charged to the receivable account). In other words, this $10,651,000 item has no effect whatsoever on the profits of the Western Electric Company, but it does have an effect upon the value of the inventory, because the title to the returned goods has been passed to the Western Electric Company. The adjustment is made at the end of the year to bring it down to what [fol. 6407] the Western Electric Company considers as a cost basis, and during all of the year there is a similar adjustment made on an approximate basis. It has no effect whatsoever on the cost of sales, other than the minor fluctuations from month to month on this returned material stock.

The cost of sales takes into account the inventories on hand at the beginning of the year and at the end of the year. To the extent that our inventory is cut down, the cost of sales goes up, but our inventory basis, as a part of the investment, represents the average investment, month by month, during the year.

We require the use of the closing inventory, not only for the purpose of determining what our average investment was, but in determining what our gross profits were. Our gross profits will decrease to the extent of the additional inventory revaluations deducted at the end of one year over those deducted at the end of the previous year. However, when we take at the end of 1930, $10,651,000 from our inventory for revaluation of Class C returned material from selling price to fair market value we have not decreased our basic gross profits by that amount, since this valuation is charged to another asset account (Receivable) and not against profit.

The same deduction has been made from our average investment during the period of twelve months as the average amount during the period. This adjustment does not have any effect, so far as the computation of average investment is concerned, and has no effect on the gross profits. This returned material from the telephone companies is credited them at selling prices. The telephone companies agree that when the material is reissued to them, they will pay exactly the same price which we paid. Of course, the title has passed

and we do not think that this returned material should be valued from a merchandising standpoint at selling price, so we charge the difference between what we think it is worth and what we have allowed the telephone companies to a receivable item, and credit merchandise inventory for the identical amount the credit to the telephone company in our receivable account and we have a debit to the telephone com-
[fol. 6408] pany in merchandise of a certain amount, and a debit in receivables of another amount, which exactly offset each other, so there is no profit or loss to the transaction.

We resell this material to the telephone company plus a 3½ per cent service charge for the handling of the merchandise, plus a 6 per cent return on the investment involved in the merchandise. There is no profit involved in depreciating the inventory at the end of the year by the $10,000,000 item. The only profit that we make on the returned material from the telephone companies is a 3½ per cent service charge (which is to cover the expense of handling and practically covers the cost) and the 6 per cent return on the investment while we have it in our possession.

It enters our inventory at one price, which is adjusted, at the end of the year, to a lower value, because it is our property and we do not think it ought to be valued as high as we have credited the telephone companies, but as long as the telephone companies guarantee to take it back at the price which we allow them, there is no profit or loss to the Western Electric Company. The amounts of this material coming to the Western Electric Company and the amounts repurchased by the telephone companies are approximately the same. It runs something like $30,000,000 of returns to the Western Electric Company and about $31,000,000 or $32,000,000 reissues to the telephone companies. The excess of returns should be a credit on sales, being the total returns less the replacements which would be the net reduction from the sales.

In valuing these returns, we attempt to get them down to the figure which corresponds to the level or fair market value in the case of the inventory, that is, to cost or market, whichever is lower, less an item which takes into account the rapidity of the movement of the product, and value it on the same basis as the Western Electric Company.

The next item, "Excluding direct labor increment loadings", reduces the inventory for 1930 by $1,198,000.
[fol. 6409] In the other column on Defendants' Exhibit

D-47 for December 31, 1915, we start with an inventory of $20,000,000. The adjustments aggregated $2,651,000, as compared to the adjustments on December 31, 1930 of $28,000,000. These adjustments in 1915 vary some as compared to 1930, and there are some adjustments appearing in one which do not appear in the other.

In recent years, you would find most all of the items that appear in the December 31, 1930 column, but they would not necessarily all be decreases from figured cost of inventories. In some cases, we have added to our inventory, because our cost of merchandise would be in excess of the standard. In a great many years it was that way. That is, the variations run plus and minus over a period of years.

EDGAR S. BLOOM, called as a witness on behalf of the plaintiff, having been first duly sworn, testified as follows:

Direct examination.

By Mr. Thompson:

March 16, 1932.

My name is Edgar S. Bloom and I live in New York City. I am at this time President of the Western Electric Company and have been since August, 1926. I was graduated from the Engineering Department of the University of Pennsylvania in June, 1895, with the degree of Bachelor of Science. I received the degree of Mechanical Engineer after one year of post-graduate work.

Immediately following, in July, 1896, I became connected with the Metropolitan Telephone and Telegraph Company, which was the predecessor of the present New York Telephone Company. I was about one year in the Traffic Department of that company as Traffic Inspector and Traffic Engineer. I was then transferred to the Construction Department and became a Foreman and Supervisor of line and cable gangs. About six months later, I was made Construction Engineer of the New York Telephone Company, and remained in that position until June, 1906. I then became [fol. 6410] Superintendent of Plant of the New York-New Jersey Company, in what was then the City of Brooklyn, which position I held for one year, when I became Superintendent of Plant of the division of the New York-New Jersey Company in the State of New Jersey, operating

throughout northern New Jersey contiguous to New York. Following that, I went to the Pacific Coast as General Superintendent of the Pacific Telephone and Telegraph Company, operating throughout the Pacific Coast states, where I had charge of construction and engineering. I was there close to a year, and then came back to New York and became Superintendent of Plant of all of upstate New York, except New York City.

I then went with the American Telephone and Telegraph Company as an engineer in charge of general supervision of plant operations of the Bell System all over the United States. Following that, I went to St. Louis as Executive Vice President of the four companies operating throughout the Southwest, which, about that time, were put into what is now known as the Southwestern Bell System, operating throughout the states of Missouri, Kansas, Texas, Arkansas, and Oklahoma.

Following that, in the spring of 1914, I came to Chicago as Receiver of the Central Union Telephone Company, in which position I remained until the receivership came to an end. I then became President of the Central Union Telephone Company, and, successively, President of the Ohio Bell, Cleveland Telephone Company, Indiana Bell Telephone Company, and Executive Vice President of what is now the Illinois Bell Telephone Company. Following that, in the spring of 1922, I went back to New York as Vice President of the American Telephone and Telegraph Company, and, in August, 1926, I became President of the Western Electric Company, which position I still retain.

The sale of our manufactured products to the Bell associated companies in 1920 amounted to $80,000,000, from which figure it increased gradually; in 1921, it went up to $111,000,000; in 1922, $125,000,000; in 1923, $144,000,000; in 1924, $192,000,000. That was a period of general increase [fol. 6411] in wage levels in this country and one of general prosperity. That prosperity and increase in wage rates brought in a new economic level of people who became possible telephone subscribers. In addition, there had been a dammed-up demand as a result of the war, so that the growth during that period is accounted for by those two factors.

From 1924 until 1927, the business, from our standpoint, was relatively steady. In 1924, the sales amounted to $192,000,000; in 1925, $181,000,000; in 1926, $192,000,000; and in

1927, $183,000,000. Beginning with the spring of 1928, we noticed a very perceptible tendency, getting stronger each month, which indicated that the demands upon us were getting to be greater than our capacity. By the summer of 1928, we had made studies looking ahead five years. We had gathered information from the associated Bell companies and the American Telephone and Telegraph Company and had carefully studied their views.

All of the indications were that we were in for a very important period of heavy demands upon us. In 1928, our business increased to $200,000,000, which was the largest business we had ever done up to that time. In 1929, it increased to $278,000,000, and in 1930 (while the slump was on us, it did not affect us until the middle of 1930), the sales were $273,000,000. In 1931, they had dropped to $171,000,000.

Now, of course, in the spring of 1928 our plants did not have the capacity to take care of this absolutely unforeseen and extraordinary growth. We were put to it in every possible way to establish temporary facilities. We introduced overtime work during the day; we put on night shifts; we rented outside quarters temporarily to meet the situation; and by the middle of 1929 we had rented outside space equal to 25 per cent of the floor area of our permanent plants. Our studies looking ahead five years clearly indicated that this demand was going to hold up. We had tested the forecasts of all of the financial and statistical experts, and we drew on all of the fund of information that was available upon which to base our predictions.

[fol. 6412] It is uneconomical to carry on manufacturing in rented quarters scattered all over, but we had to take quarters for manufacturing space where we could find them, but we immediately began to plan for permanent manufacturing plant additions within our own Works locations. Our Works at Hawthorne seemed to us to be about a completed proposition. We were drawing heavily on the labor supply in Chicago, or in the area contiguous to Hawthorne, out of Cicero.

We had, in 1925, started our plant at Kearny. That had been started because we felt that we could not depend on this Chicago labor supply for any greater number of people on an advantageous basis. Kearny was operating when

this heavy demand came on us, and we planned for certain additions to that plant.

At the same time, we had had under consideration the question of going into the manufacture of rubber covered wire, which had always been made by other manufacturers. We could see some great economies in going into that manufacture, and also we thought we could materially improve the product by being in close touch with its manufacture.

When this rush came upon us, we decided to establish a third plant somewhere on the Atlantic Seaboard, which would provide for this rubber covered wire plant, and also for an additional plant to take care of this increase of business on a permanent basis. We finally decided on the location at Point Breeze, Baltimore, Maryland, which is on the Atlantic Seaboard. The seaboard was selected because of the fact that one of the principal items of product that we expected to manufacture there, was lead covered long distance cable, and we wanted to be at a seaboard location to get the advantage of lower freight rates in shipping such cable to Pacific Coast points.

Of course, we had a very large program under way. We were in this situation; we had undertaken to furnish the Bell System (and had been doing it for years) to the best of our ability with everything that they needed in the way of apparatus and cable. The Bell System was serving the [fol. 6413] public, and they could not go back to a possible subscriber and say, "We cannot give you a telephone because the Western Electric Company has not the capacity to manufacture the equipment." We had to be ready at all times, as far as was humanly possible, to meet the big public demand for telephone service. We were planning to meet this (as far as we could see at that time) extraordinary growth; and after the most intelligent consideration it looked as if that higher level of demands on us was going to continue.

After the stock market break on October 29, 1929, I called our people together and said, "We had better go slow for a few weeks on our Point Breeze additions." We had planned a very important unit down there, an apparatus shop, which involved many millions, and a very large increase in our capacity for the manufacture of telephones and allied apparatus, and we entirely stopped that building. We had a building planned at Kearny and we stopped that,

although the foundations were under way; we completed the foundations.

After the break in June, 1930, our business began to slip very rapidly from then right on to the end of the year. While the business for the year ($273,000,000) was almost as large as 1929, that was due to the business that we had on the books, which was completed in the early part of 1930. Towards the end of the year, however, we fully realized that business was slipping, and slipping rapidly; and then we absolutely shut off all of these additions and cancelled entirely those we had already stopped. The business slipped progressively throughout the last half of 1930 and all through 1931.

Beginning with the spring of 1931, our employment problem became most serious. We had been compelled to lay off a great many people, and we adopted the policy of spreading the work to the utmost limit; that is, we would provide 75 per cent work for 100 per cent of the people, instead of 100 per cent work for 75 per cent of the people. On the first of August, we put everybody (all the executives and everyone else in the company) on a five-day week, and [fol. 6414] in some of the departments in the factories it was necessary to go to a lower basis than that, some of them working only four days a week. And that is our present situation. Our demands are very much smaller; for 1931 the total was $171,000,000, or only about 60 per cent of the output in 1929. As to these buildings that we rented (this 25 per cent floor space), we have been gradually moving that as rapidly as we could into permanent buildings, that we had planned to permanently take care of this heavier growth.

At the inception of the telephone industry, about all that the National Bell Telephone Company acquired was Mr. Bell's inventions. There were no telephone switchboards, there were no telephone cables, there were no twisted pair wires, no hard drawn copper wire.

Back in 1879, Mr. Vail conceived this plan for the development of the telephone business in America:

First, there should be a parent organization, and underneath it should be financially controlled local companies attending to the local communities. To avoid duplication of study and effort by all of the many local companies, the parent organization would do for all, those things which one organization could best do economically and efficiently.

Second, that there should be a system of long distance lines connecting all of these local companies and looking to the development of a universal service.

Third, a manufacturing organization closely associated with the telephone industry, which would be responsive to the needs and demands of the telephone industry, and the development of which could be controlled in the interests of the telephone industry as compared with the selfish interests of the manufacturer itself.

Between 1879 and 1882, the Bell Companies, through their licensee manufacturers (there were six small licensee manufacturers throughout the country), had developed principally signalling devices and call bells. When the telephone was put on the market, a man would take a telephone in his residence, and put another in his office, or his stable, and have a private line connection. But the demand soon [fol. 6415] arose for interconnection. There was a company known as the Western Electric Manufacturing Company, which had been principally engaged in making telegraph apparatus. The telegraph business, at that time, had been developed into a commercially successful business, and this Western Electric Manufacturing Company had developed switching devices in connection with the telegraph business and it had the best switchboard business in America. It seemed natural, at that time, to attempt to get control of this Western Electric Manufacturing Company, in order to combine the best switchboard manufacturing knowledge in the country with the knowledge that the telephone companies' manufacturing licensees had as to signal apparatus, call bells and so forth. In 1882, this control was acquired; the name was changed to the Western Electric Company; and the relationship has been maintained ever since.

That relationship has been an important factor in the economic development of the telephone service in America. Mr. Vail and his associates thoroughly realized that any manufacturing company making apparatus and devices for the telephone industry, would, during the process of manufacturing, invent many devices and patent them. If the manufacturer were not controlled by the telephone industry, the industry would for years pay tribute to this outside manufacturer who had developed devices because of its contact with the telephone industry. Here was an infant

industry, nothing was known and everything had to be developed; so it was essential that the manufacturing organization should be in close relationship with the technical organization of the Bell Companies, in order that it would be responsive in every sense of the word to their needs.

Twenty devices might be perfectly proper and efficient for use, but if you could concentrate on one of them and put that into manufacture, you would get increased volume and the resulting economies that come with that volume. You could only obtain that through this close relationship between the manufacturing organization, the operating telephone companies, the technical staff of what is today the [fol. 6416] Bell Laboratories, and the general staff of the American Telephone and Telegraph Company. So, through all of these years, there has been this constant relationship between the manufacturing company, the Western Electric Company, and the telephone organization.

"Judge Wilkerson: What was the reason for having a manufacturing business conducted by a separate corporation?

"A. Well, it was a separate corporation at the time, your Honor, and while utility regulation had not come into being,—as you will recall Mr. Vail was one of the pioneers in the utility regulation, and he always thought that some day all public utilities would be regulated—a manufacturing company is of a different type, for the same reason the American Telephone & Telegraph Company, while it was the overhead organization——

"Judge Wilkerson: Well, it was to keep the non-utility part of the business as a separate entity, was it not?

"A. That is my guess.

"Judge Wilkerson: Yes.

"A. I would think that would be the natural thing.

"Judge Wilkerson: I think that would be obvious.

"The Witness: That would be one of the natural reasons, although I do not believe it had crystallized into that at the time."

Every new device that is put out comes out in this way: first, the general staff of the American Telephone and Telegraph Company, through its contact with the associated companies all over the United States, finds out whether there is a need for a device to accomplish some specific thing. They consider it, and if it looks like it is a desirable thing

to do, they put it up to the Bell Telephone Laboratories. The Bell Laboratories, from a technical standpoint, develops that into a device, which, perhaps, is not yet a device that can be manufactured. That device is then submitted to the Western Electric Company and it views it from the standpoint of the possibility of economical manufacture of the apparatus involved. Finally, after it has gone through [fol. 6417] these organizations, and their minds have met, we get the finished device, which is then a standard for the Bell System for accomplishing the particular purpose involved.

A device is recommended as a standard device because it is felt that it is economically sound for use, not from the standpoint of the Western Electric Company as a manufacturer, but from the standpoint of the entire Bell System. Many devices are put into the System which mean a real loss to the Western Electric Company, but, because of longer life, lower maintenance charge, or for some other advantage, and after considering the Western Electric Company's loss and the benefits to the Bell System, in the end it proves to be economical and a sound thing to recommend to the System. Everything that is devised and finally comes into operation must pass this test: is it economically sound for the Bell System as a whole, including the Western Electric as the manufacturing end of the business?

The Western Electric has certain important advantages over other manufacturing companies. Two of the principal advantages are these: first, there is no credit risk in sales, as far as our Bell Telephone business is concerned, which is about 90 per cent of our business; second, there is no sales expense. The mere recommendation of the American Telephone and Telegraph Company, and the Laboratories, and ourselves, as a whole, after a device has been established, is all that is necessary. We do not have to go out and promote it. Now, those two things involve important savings, particularly in sales expense, and they have been passed on to the associated companies in the way of savings to them.

While they are advantages from the manufacturing end, they have meant nothing to us from a profit standpoint, because we have not retained that amount in the business. Aside from that, the risks of the Western Electric Company as a manufacturing company are about the same as any other manufacturing company. We have this advan-

tage: we have a close contact with our customers; we have their estimates looking to the future, which enable us to plan a more steady load, but, unfortunately, their estimates are [fol. 6418] not firm orders, and while they gave us estimates in 1928 and 1929, for example, as to what they would probably require, we, having assumed the obligation of taking care of them, found it necessary to provide the plant capacity so that we could take care of them. That demand, however, did not develop into orders, and we had no redress. That, in one sense of the word, is a disadvantage to the Western Electric Company as compared with other manufacturers.

In 1929, our sales of manufactured products were $278,000,000. From the best estimate we can make, we probably would have made more money in 1929 if we had refused to take the last thirty or forty million dollars of business. Our plants were working beyond capacity; we had all of these rented quarters; we had night work, which is always inefficient; overtime work, which is inefficient; our employees had been on overtime for some time, and were getting tired, and our efficiency was slipping down.

Furthermore, our manufacturing forces had increased terrifically. For instance, in 1925 we had 39,500 people on our payroll; in 1926, 45,000; in 1927, 40,000; in 1928, 56,000; and by the end of 1929 we had 84,000 people. That growth of employees began with the late spring of 1928. As I recall it, we had from 45,000 to 50,000 employees in the middle of 1928. We went up in one and a half years to 84,000 people; that is, we increased our forces practically 70 per cent in a little over one year. Now, those people, of course, were unskilled; they all had to be trained. That meant that it was necessary to take skilled men off their work to train these other people, and by the time we got up to the 84,000, the business began to slump. At the end of 1930 we were down to 64,000, and in 1931 we were down again to 44,000.

Now there was a terrific loss to us during the period of up-building and training the new forces, but there was nothing else we could do. We could not say "Well, it is not profitable to us to build this equipment for you, and we will not build it", because immediately the telephone companies would have been in trouble with their customers. The [fol. 6419] customers would have appealed to the Public

Service Commissions and the telephone companies would have been ordered to install the service.

While we have a great many advantages, those two I mentioned and this advantage of close contact with our customers, we have this important disadvantage: that we must be ready at all times to meet the peak demands of the telephone industry, and we cannot refuse to accept the business. That does not apply to other manufacturing companies. Outside of those differences, I see no difference in the risk of the Western Electric Company as compared with any other manufacturing company.

Not less than 10 per cent on the book cost would have been fair earnings for the Western Electric Company in its business with the Bell associated companies during the period 1916 to 1931. By "book cost", I mean the cost of the assets devoted to the Bell business less the current liabilities.

Cross-examination.

By Mr. Goldstein:

The Western Electric Manufacturing Company, an Illinois corporation, was the predecessor of the present corporation, and, in turn, was the successor of several other companies; I have forgotten whether it was three or not. The American Bell Telephone Company, the predecessor of the American Telephone and Telegraph Company, obtained control of this merged corporation; I do not know the mechanism, but it did acquire control.

During the period 1881 to 1907, there was a very strong minority interest; General Steger and his successors ran the business. I would not say that the real transformation of the Western Electric Company into the Manufacturing Department of the Bell System commenced in 1907. The relationship became closer as time went on; it developed. Beginning with 1907, this relationship was accentuated. You could never have the same program when you [fol. 6420] have a 49 per cent minority interest, as when you have practically 100 per cent control.

In 1907, when the American Telephone and Telegraph Company undertook to buy out the strong minority interest, it did not change the Engineering Department so as to work in with the American Company plant. It did work in more as the years went on, but that was a natural growth.

I do not recall the date when the American Telephone and Telegraph Company acquired this strong minority interest; I do not recall whether it was 1907.

Prior to 1907, there were two engineering departments, one in the American Telephone and Telegraph Company and one in the Western Electric Company, and there still are two. I do not know whether they performed the same functions prior to 1907; I never had occasion to check that up. I know that they do not perform the same functions today.

Undoubtedly, there was some duplication in the functions of the engineering departments of the American Telephone and Telegraph Company and the Western Electric Company prior to 1907. As the years have gone on, we have, with experience, been eliminating this duplication. There were duplications when I came into the Western Electric Company, and we have cut them out. I suppose there are some duplications today that we do not realize are duplications, but with experience we keep improving.

I do not know whether the American Telephone and Telegraph Company maintained laboratories apart from the Western Electric Company laboratories prior to 1907. They undoubtedly did, but I was in an associated company and I do not know. I do not know the exact date, but I know that we finally combined all of the laboratory work into what was then the Western Electric Engineering Department; I do not recall whether that was in 1907 or 1906, but it was around that time.

From 1907 to 1919, the Engineering Department of the Western Electric Company functioned to take care of all of the laboratory work and development and research that is largely done now in the Bell Laboratories. The Department [fol. 6421] of Development and Research of the American Telephone and Telegraph Company was organized under that name in 1919; of course, it had been there before. I think there were some functions of the Western Electric Company that this department took over; it was a general rearrangement. In 1925, the Engineering Department of the Western Electric Company became the Bell Telephone Laboratories, owned jointly by the American Telephone and Telegraph Company and the Western Electric Company.

As I explained in my direct testimony, the Department of Development and Research, through its contacts with the

associated companies, finds that there is a need for a certain device to accomplish a certain particular thing. They consider it from the standpoint of the telephone companies and recommend to the Laboratories that the device should be developed. For example, it may be that years ago there had been a great many complaints from people that they got a blow in the ear from capacity discharge. The Department of Development and Research would consider that and would take it up with the Laboratories, saying, "Here is a problem. We want to do away with this". The Laboratories would then go into it, work out a device or circuit, or whatever was necessary to cure that particular problem. The matter would then be taken up with the Western Electric Company, as to how to manufacture economically the device to accomplish the result desired.

The ideas as to what the telephone companies need, come from all of us. Any of us can suggest anything and the Department of Development and Research correlates it all by contact with the business.

Immediate contact with the telephone companies is through the Department of Operation and Engineering. The Department of Operation and Engineering, having found out what the telephone companies require, passes on the idea to the Department of Development and Research. But the Department of Development and Research itself, because of its general contact with the business, might see the need for something. So the ideas of the Department of [fol. 6422] Development and Research might come from the Department of Operation and Engineering, from within that department itself, or from the Western Electric Company, or from any where in the business or from outside sources.

The Department of Development and Research does a certain amount of work before it passes on the idea to the Bell Telephone Laboratories, depending on the nature of the work and depending on the problem. It does the original research and fundamental study along certain lines that do not require laboratory research; they do not have complete laboratories.

The idea comes to the Department of Development and Research, which department considers it to the point where it can be developed as a practical device to accomplish the result desired. When it gets to that point, the Department of Development and Research releases it to the Bell Lab-

oratories, which works on the design of an apparatus which will be practical to accomplish the particular thing. Then that is submitted to the Western Electric Company, to see if they can manufacture it efficiently or whether there has to be some change in the design to meet economical manufacturing.

In general, the Department of Development and Research performs the first step toward the development of new or improved products. But there are many lines of things that the Department of Development and Research does not enter into at all. The question of pole preservation, for instance, is handled by the engineers in the Laboratories. I do not know who first suggested the idea of pole preservation, but the Department of Development and Research did not make any study of that, as far as I know.

The Western Electric Company meets the requirements after the Laboratories have met our ideas for economical manufacture and after we have met the Laboratories' ideas. It is a meeting of the minds. Then there is a final recommendation by the Department of Development and Research [fol. 6423] that the device should be standard and it becomes a standard product and is brought to the attention of the associated companies through a bulletin saying that the device has been developed and we recommend it to accomplish certain results. That leads to sales by the Western Electric Company and is how we eliminate our sales resistance.

It is almost obvious that the associated companies pay their bills to us 100 per cent. We have the credit of the whole Bell System back of us. We have a customer where there is practically no credit risk. If, however, we were selling to thirty or forty thousand customers we would have some credit risk; 29,000 might be good credit risks, but the other 1,000 would be bad. We do not look at it as if it were the credit of the entire System. We do not look at it that way at all, but our experience has been that there is no credit risk. We are dealing with a very high grade of customers and we recognize that we have no credit risk. We do have a credit risk with our outside customers, the same as any other manufacturer.

This lack of credit risk is passed on to the Bell Telephone Companies because it does not appear in our expense. Any general manufacturing company would figure its distribu-

tion expense at anywhere from 15 to 25 per cent. Included in this distribution expense is sales expense of approximately 5 per cent. The Western Electric Company incurs distribution expense other than sales expense. It does not incur sales expense. Manufacturing companies generally also incur credit risk of from 1 to 3 per cent. That would go in as an element of cost, but in the case of the Western Electric Company the sales expense and credit risk are not present and are not in our costs.

I was Receiver for the Central Union Telephone Company. That company was under receivership in Judge Dever's court from 1914 to 1919. The question as to whether we would purchase from the Western Electric Company came up the minute we became receivers. There was strenuous objection to our purchasing from the Western [fol. 6424] Electric Company, and the court finally left it to the judgment of the Board of Receivers as to whom we should purchase from. We purchased every dollar from the Western Electric Company the same as we had in the past.

We went into the whole question and there was a very extensive investigation made. We found that it would cost the Central Union Telephone Company a great deal more money to buy on the open market and to establish its own purchasing department and to carry on the functions that were being carried on for us by the Western Electric Company. Therefore, the Board of Receivers decided to continue the relationship with the Western Electric Company, and it was continued throughout the entire receivership. The Western Electric had no credit risk at all, even though we were in receivership, because we paid our bills. The continuance of purchasing from the Western Electric Company was approved by the court.

The Western Electric Company did not appear in this matter, in any way, in court, but the American Telephone and Telegraph Company, as one of the parties in the suit, said, "You can do what you please," and the court left it to the Receivers. The Receivers of the Central Union got the money to pay the Western Electric Company bills from the receipts. The Central Union operated some three or four hundred thousand telephones. That was the only source of revenue we had. The Receivers did not borrow any money.

In the lawsuit there were several things challenged, and the money from the items challenged was impounded and held by the Central Union Telephone Company. The American Telephone and Telegraph Company consented that that money could be used by the Central Union Telephone Company for corporate uses approved by the Receivers, so we had plenty of money. Maybe "impounded" is not the proper legal term, but they consented to certain payments being deferred.

Prior to the receivership, the Central Union Telephone Company was a good credit risk. It always paid its bills, but it did not pay any dividends. In order to pay its bills, [fol. 6425] it borrowed large sums of money from the American Telephone and Telegraph Company. The source of money for its real operations was partly from earnings; as I recall it (I do not remember exactly now), the Central Union Telephone Company was earning enough money to pay all of its fixed charges in most years, but it had nothing left. Its indebtedness to the American Telephone and Telegraph Company was large, and constantly increased, because the business was growing and it needed money for capital expenditures. By capital expenditures, I mean the construction of new plant and that would be part of the money that would go to the Western Electric Company.

There is no legal assurance that the bills of the Western Electric Company to the licensee company will be paid because of their relationship with the American Telephone and Telegraph Company; but there is moral assurance, the same as with the Central Union Telephone Company. The American Telephone and Telegraph Company stood back of the Central Union in its dark days and performed a very valuable financial service to that company. It is really the background of the Bell System, of which the American Telephone and Telegraph Company is the controlling factor, to see that the licensees will not go astray or go into bankruptcy, and that they will meet their bills and obligations; that is also a thing that I took into account.

I stated, for the reasons described, that in the early days the relationship with the Western Electric Company had been a good thing for the telephone companies. In the development of the Western Electric Company, there was undoubtedly a reciprocal advantage to it out of that relationship.

The ideas as to the kind of items that should be developed came from all over. Let us assume that in America instead of the American Telephone and Telegraph Company, there had been just these 25 or 30 associated companies, each one separately owned and controlled. Let us further assume that the Western Electric Company was not controlled in any way by the Bell System, but was a separate manufac- [fol. 6426] turing organization. Under these assumptions, this is what would have happened:

Engineer A, out on the Pacific Coast, would have an idea which he would start to develop and spend a lot of money in experimentation. Engineer B, in another company, would have another idea, and likewise engineer C, and so on. There would be a great deal of duplication like in the railroad business when each master mechanic favors his own ideas. The Western Electric Company would have had the engineer from the Pacific Coast favoring a certain device and saying, "We want you to make that device for us." Engineer B in New York would have favored another device to accomplish exactly the same result. That would have meant that the Western Electric Company would have had to build two sets of machines, one to make the item for the Pacific company, and another to make the item for the New York company.

By virtue of this control and general supervision and close relationship, all that is eliminated. Each engineer in each company is not going off on his own hook developing his own ideas, but they are all under a general control. As I said before, the thing is done once and for all, and for all companies, in a most thorough way, because you have such a volume that you can afford to go into the greatest detail to develop the best possible idea. You could not do it in any other way.

The Western Electric Company has no competitors in sales to the Bell Companies because no one could compete with us in price. I know of no other reason why there is no competition. The associate companies are perfectly free, if they want, to buy from other sources, if they could find a better arrangement. Although there is this close relationship, there has never been compulsion. There has been only a compulsion of selfish interest, if I may express it that way.

I do not say that if the Western Electric Company were getting different ideas from all over the country we would

not have quantity production and would not have standardi-
[fol. 6427] zation. We still get ideas from all over the country.

I think unquestionably our competitors are hampered because they do not have the close relationship that we do; they cannot spend the money on the development of a particular idea because they have not the broad field that *that* we have.

The potential field for the products of our competitors outside of the Bell System I can best illustrate in this way: There are about 18,000,000 telephones in the Bell System and about 4,000,000 in the independent telephone development. There is a relative idea of the two fields. Even that does not give a clear picture, because the 18,000,000 Bell Telephones, as a whole, are in the large cities and have a little more potential purchasing power than the 4,000,000 telephones in the smaller towns.

I should say that these 4,000,000 telephones are operated by about six or seven thousand companies. There are a lot of good sized companies. I do not now remember how many independent telephone companies operate in cities of 100,000.

We purchase from Kellogg and Stromberg and from the Automatic Electric Company, certain items which are sold to the Bell System. These companies are, in a sense, competitors of ours, but not in the ordinary sense. I do not consider their prices are competitive with ours in the Bell business, because we make a different type of product. To expand on that answer, in the Bell System the primary consideration in everything that is put out is quality and operating cost as compared with low initial cost, and perhaps in service, high operating cost. That is because of this relationship in the Bell System. Quality is always the supreme condition in every device.

The Western Electric Company undertook some years ago to construct machine switching equipment for the telephone companies. I do not carry in mind the volume of that equipment manufactured by the Western Electric Com-
[fol. 6428] pany, but it has been rather large. It has been a substantial percentage of our product during the years. I cannot state definitely when this machine switching program started in the Bell System, but it was somewhere [illegible]8, 1919 or 1920. I do not carry in mind what percentage of the Bell System is now on machine switching

operation. It is less than 50 per cent. I imagine it is in the annual report of the American Company which has just been issued. The plans which we have made contemplate the completion of that program; that program was one of the reasons we have built our permanent investments. We have been looking 10 or 15 years ahead on that. I would say that if America is going to come back that there will be business from these concerns for 10 or 15 years.

In connection with that program, we undoubtedly had some development of patents to accomplish, although I am not familiar with the details; our development expense includes whatever that expense was. In addition, we have also acquired patents from others. I know that we acquired some patents from the Kellogg Switchboard Company somewhere around 1914, but I do not remember whether they were automatic patents or not. They may have been, but I do not know.

I do not happen to know whether we acquired any patents or licenses from the Stromberg Manufacturing Company. I would assume that we did. Our policy on patents has been to endeavor to acquire them whenever we felt that our failure to do so was going to hamper us in our field of development, even though we could not use the patent. We always wanted a free field of development along our own lines. In the case of a particular patent, we would say that it is of no special advantage to us, but we do acquire an interest in it, as it may be that our field will be narrowed; we cannot tell and we do not take chances.

We have given reciprocal licenses; that depends upon the deal. I do not recall any licenses to the Stromberg-Carlson Manufacturing Company in exchange for licenses to us in connection with machine switching.

[fol. 6429] I do not know whether any of our licenses have provided that the licensee shall not sell any of the devices resulting from the use of the invention to the Bell System. We have made no general contract in restraint of trade.

"Q. All right. Concretely, what would you say, if you found that the Western Electric Company made an agreement with the Stromberg-Carlson Manufacturing Company somewhere around 1923, by the terms of which Stromber

gave the Western a license on the Stromberg patents relating to the panel-type and other types of machine-switching, and then you found that the Western Electric likewise gave Stromberg a license for its inventions—and then you found that it recited—a recital that there was a question as to whether Stromberg's inventions infringed on the Western's, and to eliminate that possibility, this contract was being entered into, and you found a restriction whereby Stromberg agreed that it would not make use of the license granted to it for the purpose of constructing any items of apparatus to sell to the Bell business——

"A. Oh, that is an entirely different problem.

"Mr. Thompson: Just a moment. Plaintiff objects to the question as argumentative, and beyond the proper field.

"Judge Wilkerson: Do you know anything about it?

"A. I don't know anything about the particular contract, but I know, your Honor, that if we own a patent, we can in dealing with anyone, say whether we will give them a full patent on it, or a patent on it in one field, or in another field. That is perfectly legal. But that is entirely different from what you were inferring.

"Q. There is no question of legality now, Mr. Bloom; I am trying to get the facts.

"A. Well, you cannot get it from me, because I do not know what you are talking about.

"Q. All right. If you do not know anything about it.

"A. No.

"Q. All right. Then you certainly did not take that into account in your statement as to what would be a fair return?

"A. That particular thing?

[fol. 6430] "Q. That fact—the fact that the Western Electric has eliminated competition on the machine-switching program or any part of it, in regard to—in its relation to the Bell System?

"A. No, no, we have not eliminated competition.

"Q. Well, will you please answer me. Did you or did you not take into account in your determination of a fair rate of return the fact that the Western Electric did, or might—did in fact eliminate such competition?

"Mr. Thompson: To which question the plaintiff objects.

"The Witness: Well, the facts are these: I do not know

the particular thing Mr. Goldstein is talking about—we own a patent; I do not know what it is—it may be a patent, as you say, on machine switching. Now we have a perfect right, as long as that is an adjudicated patent, to do what we please with it, and manufacture under it. We can give you a license in a limited field, or in no field. We can tell you that you can sell it to A and not to B, or not to C.

"You asked me whether I had taken account of this patent situation. No, I did not."

I did not take the patent situation into account, because if I had, our profits would of necessity have been much larger, as under a patent you can exact anything you please, but that has not been the policy of the Bell System or the Western Electric Company.

I told in my direct examination about the increase in the volume of business beginning with 1928. That was also a period of activity in the outside business of the Western Electric, that is, in the business of the Electrical Research Products. In 1929 there was not so much as in 1928; the jump was in 1928. We did not have to do any reorganizing of the manufacturing business in connection with the Electrical Research Products as that was too small a percentage of the total. We had to establish a department to manufacture that apparatus. I do not know how many men we put into that department or the [fol. 6431] size of the department. The great activity about that time that led to the increase in facilities was in Bell business.

No special plant or equipment whatever was built for the Electrical Research Products business. We put it into a small department out at Hawthorne. The room the department is in was a little longer and narrower than the court room. There may have been some machine investment to manufacture this equipment, but in relation to our volume and investment it was almost nothing. I might guess that the expenditure for this equipment was a couple of hundred thousand dollars or half a million, or a million.

This construction program for plant started in the fall of 1928. It was contemplated that it would continue for a period of three or four years, as I recall it. That is, it would run from 1928 to 1932, or 1933. At Point Breeze, we had it planned out for a period of about 15 years. In

connection with the program, we contemplated spending somewhere around $100,000,000 altogether.

We had forecasts and information upon which we based our future program. Each year the associated telephone companies make up their budgets and their forecasts for the next year, and forecasts for the next five years. These budgets go to the Department of Operation and Engineering of the American Telephone and Telegraph Company, where they are assembled and considered, and bulked up. There are extensive conferences on them between the economists and the operating people of the American Telephone and Telegraph Company, as to whether in total that looks like a reasonable program in view of business conditions. They check up the general business conditions to get the best view that can be had for a general picture, and we are then advised as to that.

We find, for example (I am just taking that as a theoretical case and assuming that our manufactures have been running at the rate of $100,000,000 a year), in connection with this forecast, that at the beginning of the third year the requirements on us are going to jump up to $200,000,-[fol. 6432] 000. That gives us a tip immediately, and we begin to figure just what we should do to meet this anticipated demand of two years later so that we are not caught at the last minute. We work up our ideas, and if we can, we wait until next year to see what jump is then contemplated for two or three years ahead. We wait until the last moment before we commit ourselves.

Nobody in 1927 had anticipated what was going to happen in 1929, and no one in 1929 anticipated what was going to happen at the end of the year. As a result, we came to this increase of business in 1928 and were forced to do a great deal of temporary work.

"Q. You say that nobody had anticipated the break. How long—this provisional estimate that you are talking about, the last one you used, at the end of that year, 1928, was that the one you based your program on?

"A. Yes.

"Q. 1929?

"A. 1929.

"Q. 1927?

"A. 1927 and 1928, we reviewed them; they are in our proposed program, as forecast.

"Q. And which runs for about five years?

"A. Yes. Of course, the last few years are not on as solid a foundation, in fact, as the earlier years."

We check the likelihood of such a program in every way we can. The use of the economists of the organization is just one phase of the check. We had in mind at that time that there might be a break in prices or wages or wage levels between 1931 and 1940. We felt, back in 1927, that the building cost undoubtedly would come down, but we did not know when. I had in mind that wages might come down, but I hoped that we would never have to cut our wage level in the Western Electric Company, because I am a believer in high wages; I think they promote efficiency.

I felt that the wage levels other than those of the Western Electric Company might come down, and particularly those in the building trades, which I always thought were [fol. 6433] out of all reason. The increase in wage levels of working people in general during the years of 1921, 1922, 1923 and 1924, was one of the elements causing the increase in business. There was also a greater demand, and, in turn, that reacts on business. In 1928 we took into account everything, including the possibilities of a decline in demand for telephone service because of a decline in wages outside the Western Electric Company.

Provisional estimates made at the end of 1928 showed an increase in business during the period 1928 to 1932. I do not know whether it showed an increase for every year, but there was quite an increase, and it indicated that the level of business was higher and would be higher for the years 1931 to 1934. I did not see the provisional estimates. All I saw was the summary which estimated the telephone companies' stations and their plant requirements. This summary showed there would be an increase in stations each year from 1931 to 1934. I do not know who compiled the summary, but it was someone in the American Company. We had nothing to do with this compilation. We just got it after the American Company had it.

We did not accept the summary as facts, they are not facts, they are estimates. We accepted it as a fact that they did not give us wrong information, and we assumed that they had given us the information as they had it. There was no reason for their giving us wrong information. So far as reasonable, we relied on that information.

These summaries were made up of combinations from the various provisional estimates from the local companies. Provisional estimates are not a controlling part of our operations, but they are important information to us in order to enable us to start our studies. They are important in determining what they will require from us. It gives us a general idea.

These provisional estimates have not the same important relationship to the Laboratories and the American Telephone and Telegraph Company as they have to us, at all. These figures can be converted into actual estimates [fol. 6434] of probable volume of different types of equipment required of us. As far as the Laboratories and the general staff of the American Telephone and Telegraph Company are concerned, they have this problem before them planned out for years ahead; the mere fact that the growth is going to be 700,000 instead of 300,000 stations is not an important vital factor to the Laboratories.

It is important in this respect: some years ago, in forecasting the growth in New York City, for example, it was estimated that in about 15 years there would not be enough young women in New York City to operate the telephone switchboards. This was a tip to the general staff of the American Telephone and Telegraph Company and to the Bell Telephone Laboratories (then our Engineering Department). They started to work on the machine switching program. Those things are of importance to the Laboratories and to the Department of Development and Research for far views, but not for the immediate day to day or year to year use in the same respect as it is with us.

"Q. Now, Mr. Bloom, the Western Electric stands about 70 per cent of the entire expense of the Bell Telephone Laboratories, is that correct?

"A. Well, I do not know whether that is the exact percentage——

"Q. Well, about that.

"A. (Continuing.) But it sounds about familiar.

"Q. 65 to 70 per cent.

"A. Depending—it is based on the use that we and the American Company make of the Laboratories."

The program of the Bell Telephone Laboratories is according to a budget from year to year. I am a Director of

the Bell Telephone Laboratories and am familiar with its operations.

The 15 to 25 per cent sales expense and 1 to 3 per cent credit risk of which I spoke were intended to relate to the percentages of sales.

When I spoke about the forecast indicating increase in [fol. 6435] stations, I meant an increasing increase each year. It gained a little momentum as it went along.

In general, a 10 per cent return on the book cost of property is a fair return for the Western Electric Company year in and year out. Of course, you cannot run a manufacturing business and make an even amount each year. In a period of unusual activity we make a little more. Other years we make a little less. But over a long period of years, a manufacturing company similar to the Western Electric should make about 10 per cent on its assets devoted to that business, less current liabilities.

There is a relationship between our prices and a fair return on our property that we expect to get. Because of our close relationship, we have always attempted to keep our prices down to a figure which we consider beyond the criticism of any fair investigator.

I would consider the 10 per cent return on property a minimum to which we would be entitled. I said not less than 10 per cent. In 1923 we earned about 6 or 7 per cent (I forget the actual figure) on the basis I have defined.

I do not think there ever was a return on the Bell business, during the period 1923 to 1930, of 10 per cent on the book cost of the property less current liabilities. I think that such a return was earned on the non-Bell business during some of the years. We make all we can on the non-Bell business. There may have been one year when it was close to 10 per cent on the Bell business.

The capital that goes into our business is determined by the total amount of our business. Inasmuch as some of the business is to outsiders, that proportion is determined by the outside business. I do not recall how much money went to the Western Electric Company from outside sources, other than earnings, during the period 1923 to 1930.

I said that I consider that 10 per cent on the book cost of the property devoted to the Bell business less the current liabilities, would be a fair rate of earning for that

class of business, considering the risks and everything [fol. 6436] that was attached to it. That was not for any one year. It was an average for years.

The amount of dollars necessary to pay interest, the amount of dollars to pay dividends, and the amount necessary to have left over to go to surplus, added together, must be the 10 per cent. You pay out your interest and dividends and what is left is surplus.

"Q. Then, your opinion that a 10 per cent return was the fair return over the period of years was on the 10 per cent on the amount of property represented by the bonds, and the stock and the surplus, is that it?

"A. I didn't say that at all.

"Q. Assume that the book cost of that property is a hundred million dollars. Would you consider as adequate a return on the hundred million of dollars which was equal to 3 per cent, which took care of all of the expenses, took care of all of the interest, the amortization of the bonds, and yielded $9 per share for every $100 of investor's money in the capital stock?"

(Plaintiff objects to the question.)

"Judge Wilkerson: He may answer subject to the objection, and you may make a motion to strike out the answer.

"A. The answer is that I would only consider it a fair earning if it was not less than 10 per cent on the book cost of the property. Now, here is the reason for it: the return on the stock, the dividends you pay on the stock means nothing until you investigate the whole corporate structure of the company. The company may have a tremendous amount of watered stock out, it may represent no value at all. I can well conceive that a 10 per cent earning might produce a half of 1 per cent on the stock, and still it would be a fair earning, in my judgment. Again, I can well conceive that the 10 per cent might result in a 200 per cent dividend on the stock, and not be an unfair earning. It would depend a great deal on the corporate structure, but——

"Q. I said $100 of investor's money, so it eliminates the possibility of watered stock.

[fol. 6437] "A. Oh, no, it doesn't at all. It cannot possibly eliminate it.

"Mr. Goldstein: All right. The investor's money is his subscription to the stock, and that was $100 per share. Would you say, if it yielded $9 per $100 of investor's money represented by the amount of the investment in capital stock plus the surplus existing in the business, and belonging to the investor——

"A. Those figures mean nothing.

"Q. Those figures mean nothing?

"A. Those figures mean nothing unless you investigate the whole corporate structure. My answer is just the same as it was before, not less than 10 per cent on the book cost of the property devoted to the particular business."

That answer does not take into account the corporate structure of the company; it takes into account the book cost of the property and not the relation of the bonds, stock and surplus and all that sort of thing. It does not take into account the number of dollars represented by the bonds, stock and surplus, but it does take into account the book cost of the property which is on the asset and not the liability side. The depreciation reserve is on the liability side. I am talking about the assets of the company. Take the book cost of the property and deduct the current liability and you have the book assets devoted to this particular business. I have said all along that I took into account the liability, "current liabilities." But I did not take into account the particular liability known as depreciation reserve.

I did not say that 10 per cent of all the assets was a "fair return." I said that it was "fair earnings." I said "fair earnings" because I wanted to distinguish between a return on a public utility and a manufacturing company. The fair earnings which I defined was 10 per cent on the book cost of the property less current liabilities. The 10 per cent I do not define as a return but as earnings.

[fol. 6438] RICHARD H. GREGORY, a witness on behalf of the plaintiff, having been previously duly sworn, resumed the stand and testified further as follows:

Cross-examination (continued).

By Mr. Goldstein:

March 16, 1932.

We have apparatus and equipment designed wholly or in part by the Western Electric Company but manufac-

tured by others. The sales of these items are included in Exhibits A-78 and A-79. Some parts of the apparatus included in Defendants' Exhibit D-48 are manufactured by the Western Electric Company and shipped to the companies, and it is my impression that the article is shipped from these manufacturing companies in completed shape. I think the shipments are made direct from the outside manufacturer to the Bell licensee company. We consider them under manufactures and not under supplies, but it is my impression that they are sent direct from the outside manufacturers. There may be some cases where there is some work done.

The prices on these items are set by the General Commercial Manager at 195 Broadway. The independent manufacturer bills us and we bill at the price at which we sell. Whatever shipping instructions are necessary are made by us.

I know that these items are included in the total sales to Bell Companies, where such apparatus was sold to the Bell Companies, and I assume it was practically all sold to Bell Companies. They are included in our cost of sales and in connection with our adjustments to the extent that the latter is applicable. The total costs of all our manufactures are included in our aggregate cost and as a basis of distribution of the adjustment between Bell and non-Bell business.

In determining the adjustment on the items manufactured by the Western Electric Company itself and what part of it should be allocated between Bell and non-Bell business, we take into account the total cost of our manufactures. I do not know whether that total cost includes or [fol. 6439] excludes the cost of these items on Exhibit D-48; I would have to check up on that.

I stated yesterday that I did not have the figures for 1929, but for the ten-year period the aggregate of the adjustments depending upon shop costs as a basis of allocation was 2/10 of 1 per cent. We have a statement showing the amount of that adjustment year by year, which, in the aggregate, equals 2/10 of 1 per cent. I will produce that statement for counsel for the defendants.

In the year 1916, we made adjustments from basic gross profits to arrive at the total gross profits. We then allocated these adjustments between non-Bell and Bell busi-

ness, in order to arrive at the gross profit of the Bell business and the gross profit of the non-Bell business. All of the information concerning these adjustments allocated between Bell and non-Bell business, is in the underlying records, which the defendants have had access to since September, 1931. I am not able to say how much that adjustment was in 1916 which we apportioned between non-Bell and Bell business; I cannot carry all of those figures for 16 years in my mind. The data is in the underlying records and probably in some of these trunks in the courtroom.

There are six men from my organization in the courtroom now. All but one of them came from New York and they all came to help me in this case. I have the underlying data we used in determining the amount of the adjustments between Bell and non-Bell business in 1916 in this courtroom. I also have it for the years 1917, 1918, and every year thereafter.

(It was agreed by counsel that representatives of each side would meet and attempt to agree what the basic gross profits and basic adjustments were for each year.)

The prices for special commercial products sold to non-Bell customers were established by the General Commercial Manager on the same sort of basis as applied to the Bell business; all of the information went in, including competitive prices.

[fol. 6440] "Q. You have stated there were many kinds of adjustments, and the basic gross profits which have to be made in order to arrive at the annual gross profits, is that correct?

"A. We went over that yesterday, Mr. Goldstein.

"Q. Yes. Then, you said you arrive at the actual gross profit for the Bell and the non-Bell business separately, as shown in D-19, by computing just the aggregate basic gross profits of each class, and then applying a portion of the many kinds of adjustments to each class on the basis of the apportionment of their aggregate gross profits, or the aggregate standard costs?

"A. Shop costs.

"Q. Yes, that is correct. And in computing your ratios of the aggregate standard shop costs of Bell and non-Bell business, you included in each case the total of the appl-

ances and the special commercial products sold to the Bell customers, and the appliances and special products sold to the non-Bell customers, as a unit?

"A. Took into consideration all of our shop costs.

"Q. Yes. Now, the result of that computation, you claim, gives you the correct statement of the actual gross profit resulting on the Bell and non-Bell business, and as shown in exhibit D-19.

"A. Yes, sir.

"Q. In order that your calculation should give that correct statement, do you not assume that the same ratio of adjustment is applicable each year to appliances as a class, and as to specialty products as a class?

"A. We spread that adjustment over the entire output of the factories that produce what we call telephone apparatus, which includes both specialty commercial products, as well as telephone apparatus.

"Q. But isn't that on the assumption that the same ratio of adjustment is applicable to one class as to the other?

"A. Yes, this 2/10 of 1 per cent over ten years would be applied equally over each class."

The same ratio of adjustment is applicable each year to appliances as a class and to specialty products as a class.

[fol. 6441] "Q. Have you any figures to prove that, to prove that the same ratio exists of adjustments of appliances as a class as it is to specialty products as a class for each year?"

In a large manufacturing business such as the Western Electric Company (manufacturing, as I said yesterday, over one hundred thousand different parts), when we get to the end of the year and find that there is this difference between the actual amount of labor, material and expenses and the amount included in the standard shop costs, the only practical way that we can apportion it is to prorate it over the entire output. I have data on which I based my statement that the same ratio of adjustment is applicable each year to appliances as a class and to specialty products as a class.

We divided our adjustment between telephone appliances sold to Bell and those sold to non-Bell customers on the basis that the total aggregate shop cost of sales to Bell and non-Bell business bore to the total aggregate shop cost of

sales. We assume that the same ratio of adjustment is applicable each year to the appliances sold to the Bell and those sold to the non-Bell customers; we have no other way of doing it. We have no facts to prove that assumption, except experience in the business and sound business judgment and that it would be unwise and expensive to attempt to get any further details and to get a finer allocation of that deficit or surplus.

"Q. In other words, your conclusion that the same ratio of adjustment exists in the case of Bell and non-Bell sales is predicated upon the proposition that it would be too expensive to work up a method to find out?

"Mr. Thompson: The witness answers a question that an apportionment has been made on the basis of judgment and experience, and because it would be greatly expensive to do it another way. Then after he has answered it, then counsel said, 'Now, your answer is based upon the expense of doing this,' omitting two of the propositions that the witness has definitely placed in his former answer. I say that is not a proper way to cross-examine a witness.

[fol. 6442] "Mr. Goldstein: If counsel will permit his own statement to stand as the witness' answer, I am satisfied.

"Mr. Thompson: All right. That is all right."

I spread the labor adjustment over Bell and non-Bell apparatus, including specialty products, on the basis of the shop costs of all of them. By so doing I assumed that the differences between the actual labor and what was used in the standard costs should be prorated in that way.

Each item manufactured has a factor of labor, a factor of material, and a factor of overhead. Each item of non-Bell business has the same three factors. The allocation of this small variation (amounting to 2/10 of 1 per cent over the ten-year period) is on the basis of the total labor, material, and overhead in the standard costs compared with the actual expenditures for labor, material, and overhead with inventory adjustment computed at the end of the year. The adjustment is a combination of the adjustments of labor, material, and overhead.

Of course, there are variations in the percentages of total cost of labor on different items of the one hundred thousand manufactured. They are infinite in number. In some items there may be a small percentage of labor, and in other

items a large percentage of it. Of course, labor varies all over the lot.

"Q. Now, if an item which is sold to the Bell business—which is part of the Bell business, contains a ratio of 25 per cent labor, 25 per cent material and 50 per cent overhead—I am just using those figures for figures—and another item which is sold to non-Bell has a ratio of 50 per cent labor instead of 25, and 10 per cent material instead of 25, and 40 per cent of overhead, would an adjustment which takes care of the errors as to labor, material and overhead of both of those items, if spread on the basis of the actual shop cost, give you a correct adjustment?

"A. We, of course, never ascertained what the proportion is for specialty commercial products as compared with telephone apparatus. Undoubtedly there are variations. I don't know what they are, never attempted to find out what they [fol. 6443] are. But your illustration is, of course, extreme. My impression is that the relation for both telephone apparatus and special commercial products, as far as the labor factor is concerned, is approximately the same."

I should say that the relation for material in both telephone apparatus and special commercial products is approximately the same; of course, there are variations, and there may be wide variations, but, on the average, I should say they are the same. I would say the same as to overheads; I am not familiar with the details and I have not examined them, but that would be my impression.

I have never looked into the matter as to whether, on the average, the relation of the factor of labor to the total shop cost of appliances is the same as the ratio of labor to the factors making up the shop costs of specialty products.

The adjustments include also an adjustment of material.

We average the entire matter on the total of the labor, the total of the material, and the total of the expense compared with the aggregate standard shop costs with inventory adjustments. The variation resulting amounts to 2/10 of 1 per cent, and is spread over all. There may be more or less material, more or less labor, or more or less expense that go to specialty commercial products; I do not know, and I have never looked into it. The variation of 2/10 of 1 per cent is the average I found for the period of ten years from 1921 to 1930. My answer would be the same in con-

nection with the spreading of the overhead adjustment between non-Bell and Bell business.

"Q. Now, consider for the moment various customers within the Bell System; you assume, having spread the assessment over the Bell business as a unit, as compared to the non-Bell business, you have produced Exhibit A-78 as a result, which shows the profits of the Bell business as a whole, is that true?

"A. That is correct."

There have been produced in my direct evidence certain statements or exhibits which clearly indicate the relation-
[fol. 6444] ship between the profits on the particular items sold to the Illinois Bell and the profits on the sales to the Bell System as a whole.

That relation is shown on Exhibit A-93. Exhibit A-93 shows the total sales to Bell customers at $3,100,000,000, and sales to the Illinois Bell of $209,000,000, each covering the period 1916 to 1931, inclusive. This exhibit shows that the per cent net profit to sales on Bell business amounted to 4.9 per cent, and that the per cent net profit to sales on Illinois Bell business amounted to 5.3 per cent. It further shows that the per cent return on investment on Bell business as a whole amounted to 6.6 per cent, and the per cent return on investment on Illinois Bell business amounted to 7 per cent.

Plaintiff's Exhibit A-97 also indicates the return on investment in the Chicago area for the Illinois Bell business is 6.3 per cent, and the return on investment for the total Bell business for the same period (1928 to 1931) is exactly the same (6.3 per cent).

We arrived at the profits on the Illinois Bell business by taking the percentages shown on Exhibit A-88. In that exhibit is shown the percentages which total sales of telephone apparatus to all Bell companies bear to total sales to all Bell companies. This percentage for the years 1916 to 1930 is 52.9 per cent. I later put in evidence the figures from 1916 to 1931, which show 53.7 per cent for telephone apparatus. The figures that I will now give are for the period 1916 to 1931: the per cent of total sales of telephone apparatus to the Illinois Bell was 59.1 per cent of total sales. Lead covered cable was 15 per cent of the total sales to all Bell companies and 15.1 per cent of the sales to the

Illinois Bell. Supplies were 31.3 per cent of the sales to all Bell companies and 25.8 per cent of the sales to the Illinois Bell.

It is by the application of the average rate of net profit that we have made on each of these classes of business, telephone apparatus, lead covered cable and supplies with all Bell customers to the sales to the Illinois Bell Telephone Company, that gives the profit made on the Illinois Bell business as compared to the profit made on the Bell business [fol. 6445] as a whole, and is shown in the exhibits which I read a moment ago.

As far as telephone apparatus is concerned, we first determined the per cent which the sale of telephone apparatus bore to total sales to all Bell companies. Then we ascertained the per cent which telephone apparatus bore to all sales to the Illinois Bell. As shown in the underlying exhibits, which the defendants have had access to, we know that we made a certain net profit on telephone apparatus during this period. This figure of profit, as I carry it in my mind, is 7.2 per cent, and, assuming for the purpose of this explanation that that is the correct percentage, we applied it (or whatever the correct percentage was) as a profit to the telephone apparatus sold the Illinois Bell Telephone Company. We did the same thing for cable and for supplies, and thereby got our total.

We divide the basic gross profits among the three main classifications; that is, telephone apparatus, supplies and cable. The adjustments which have been discussed heretofore are made on telephone apparatus, on cable, and on supplies separately. We assumed that because we made 7.2 per cent on all items of telephone apparatus sold to the Bell System as a whole that by applying 7.2 per cent to the sales of telephone apparatus to the Illinois Bell we get the net profit on our sales of telephone apparatus to the Illinois Bell, because we think that the sales to the Illinois Bell are a fair cross section of the total sales of the Western Electric Company on telephone apparatus. We made an actual division of the sales to the Illinois Bell Telephone Company for the four years 1928 to 1931 between the sales in the Chicago area and those outside of the Chicago area, and applied whatever the rate of profit was for those particular years to the Chicago sales (this 7.2 per cent is the rate over the whole period of fifteen years). The rate which we ap-

plied to the particular sales of telephone apparatus, either to the Illinois Bell or to the Chicago division, was the rate representing the net profit on sales of telephone apparatus to all Bell customers for that year.

[fol. 6446] "Q. And that is on the assumption that the sales to the Illinois Bell or to the Chicago division, in either case, was a fair cross section of the operations of the Western Electric on telephone apparatus?

"A. Of course, when it comes to the Chicago area, we made an exact division there, and we know what the telephone apparatus portion is, but with that exception, Mr. Goldstein, your statement is correct."

It is on the basis of being a cross section. There are many items of apparatus. We know that the total cost of any article of telephone apparatus manufactured by us and sold to the Illinois Bell is the same for the Illinois Bell as if sold to any other customer.

The Illinois Bell buys telephone apparatus (a generic term which includes many items). Each of the items making up the one class of telephone apparatus has a varying ratio of labor, material and overhead. No one company purchases the same number of items as every other company, or the same proportion of the number of items as every other company in the Bell System. They change from time to time. We think that the Illinois Bell, on the average, gets just about the same number of items of the various kinds as the total relation of their purchases from the Western Electric Company bears to the purchases of all Bell companies.

There are about twenty thousand items, involving about one hundred thousand different parts, constituting the class known as telephone apparatus. There may be a very little variance in the ratio of labor, material and overhead in a great many of these items, and there may be more than a little variance. I do not know. I do not know the degree of variation. I do not know the degree of variation in a combination of these items purchased by the Illinois Bell and purchased by any other customer of the Bell System; this is averaged. I do not know that for any one month, or for any one year. We know the average adjustment that it is necessary to make at the end of the year. I do not know the average variation in the ratio of labor to total shop cost of the items sold to the Illinois Bell, and the ratio of labor

[fol. 6447] to the total shop cost of the items sold to the Bell System. I do not know the average of the ratio of material to total shop cost of the items sold to the Illinois Bell and the balance of the System. I do not know the average ratio of the overhead to the total shop costs of the aggregate of the items sold to the Illinois Bell and to the balance of the customers.

"Q. Without any knowledge of the ratio of labor, material and overhead to the total shop cost, and without specific knowledge—without knowledge of the amount of error in the labor, material and overhead constituting the standard shop cost of each item, how can you correctly adjust—spread the adjustments on the basis of the total shop costs and know that the adjustments later give you a correct result?

"A. By the use of common sense."

That common sense is based upon experience over the life of our business of manufacturing. It is based on the cost studies that we are making from time to time and our knowledge of the quantities of various materials and kinds of materials that are shipped to the various telephone companies.

The average adjustments will equalize over a period of years. I have already stated that over the ten-year period 1921 to 1930 the variation between standard and actual shop costs only amounted to 2/10 of 1 per cent. I could not tell whether it would require a ten-year period, or a nine-year period, or a seven-year period to equalize. I can tell what the facts are in the last ten years, but I cannot predict as to what they will be in the next ten years. I have no facts as to whether or not the adjustments on the merchandise purchased by the Illinois Bell in the years 1911 to 1920 will equalize the adjustments of purchases for any other period. The ten-year period of which I have spoken practically did equalize. I do not know whether if I had used a nine-year period it would have equalized, nor do I know whether a twelve-year period would have equalized.

In determining that the ten-year period would equalize, I took the actual facts. That is, I found, for example, that [fol. 6448] in the year 1921 the adjustments increased the profits, while in the year 1922 they went the other way; I do not know about going up and down in any particular

year, but over the ten-year period I know they did equalize, with a minor variation of 2/10 of 1 per cent.

I do not know whether the net aggregate of the adjustments for labor alone would equalize over a period of ten years, nor do I know whether the net aggregate of adjustments for material would equalize over a period of ten years. The figures for overhead are available, but I do not carry them in mind.

This average of 2/10 of 1 per cent includes the combination of labor, material and overhead. The result of the adjustment of each of these could be ascertained. I took into account that the aggregate of all three would equalize. I do not know what the result would be separately. That is a matter of fact that I do not carry in mind. At the time that I arrived at the 2/10 of 1 per cent variation, I think I had the figures separately, but I did not attempt to keep those particular details in mind among the mass of figures I have to keep in mind. I knew, at the time that I came to the conclusion as to the 2/10 of 1 per cent for the aggregate of the adjustments, about the labor adjustment separately, but I do not recall what it was. I also had at the time the data showing whether the aggregate of the material adjustments taken separately would equalize over a period of years, and the same information concerning the adjustments of overhead separately. I will produce all that information for counsel for the defendants.

The adjustments in the Bell business were spread over the several main classes of products. The adjustments are spread over telephone apparatus as a whole and not by the items that make up the total of telephone apparatus. The result would be that the adjustments would be spread over the subclasses according to the percentage they bear of total standard shop costs of all with the aggregate of shop costs of each class. I think it would be very, very surprising if the ratio of labor, material and overhead to the total cost [fol. 6449] were the same for each of the subclasses of telephone apparatus. It might be the same for lead covered cable, because lead covered cable is a simpler form of manufacture than is involved in the manufacture of one hundred thousand different parts; but I do not know. I should think that the ratio of labor to total shop costs for the various subclasses of telephone apparatus would vary. The same would be true with the ratio of material and overhead, be-

if the labor varies, the other two must vary. The combination of the various factors, then, would necessarily vary.

"Q. Then with a variation in the ratios of labor, material and overhead, separately, and with a variation in the aggregate, how can you spread an adjustment over the various subclasses on the basis of the percentage of total shop cost and get a correct result?

"A. My answer to that is the same as I answered before. The result of our experience and study and knowledge of our business has convinced us that on the average, by applying it on the average, we get a correct result."

I selected the years 1921 to 1930 as a basis of my study because that was a period when we began to have a decline in prices for material purchased and was a period when we began particularly to make a reduction in prices to our customers. Beginning with 1921, the prices of our materials started to drop; 1921 was a year of depression. I do not recall whether prices were dropping in 1922. Previous to 1921, the years 1916, 1917 and 1918 were war years. Conditions were very unusual, and in 1919 and 1920 the price level went up. In 1921, prices went to a lower level, and I took that as more representative of an average than the whole fifteen-year period. I do not think that the period taken would affect the study. I would be perfectly willing to take the whole period of fifteen years. There is not much difference in the variation, whether you take fifteen years or you take only ten years. If I had taken five years, it would be different from the ten years and different from the fifteen years.

[fol. 6450] "Q. That is, the degree of error would depend upon the number of years that you took into your calculation?

"A. Well, the degree of adjustment.

"Q. Of adjustment?

"A. Not error. I would not call that error."

The degree of equalization, that is, whether it is 2/10 of 1 per cent, or 5 per cent, or 10 per cent, or 15 per cent, would depend upon the aggregate of the conditions in each of the years which make up the total. If you take fifteen years, you get one result; ten years, another; and five years, another. The ten-year period covers that period and noth-

ing else. The ten-year period would not be intended to give a conclusion as to what was the situation before the ten-year period. The study is based upon the situation during the period 1921 to 1930 and covers only the question of the equalization of the adjustments during that period and nothing more.

If we actually figured it out, we might find from a very careful study that the adjustments applicable to the Illinois Bell business would add a great deal larger amount to the cost and would reduce the per cent we are showing, but we do not think it is fair to do it that way. We might also find the converse. We have taken the average. We have averaged it by years; that is, each year in these results that are here are the adjustments for the particular year. The summation of all these adjustments over the period 1921 to 1930 I have given at 2/10 of 1 per cent.

I presume that we have varying adjustments within a single year between the items sold to the Illinois Bell and the items sold to other Bell customers. We have no knowledge as to whether the Illinois Bell would be affected adversely or advantageously during the year by our method of distributing these adjustments according to the percentage of the total apparatus purchased by it as compared to the whole.

In this exhibit, year by year, the item of the adjustment enters into the cost of sales as the adjustment for that particular year. Now for 1916, the adjustment would be for [fol. 6451] 1916, and so on. The result of the study which I have stated is for the aggregate of all the period 1921 to 1930. In one particular year, say 1923, the adjustment might affect the profits on the Illinois Bell business in one way and the balance of the Bell business in another way; but if the Illinois Bell purchases from the Western Electric a fair cross section of items which are manufactured for all companies for that particular year, it would not affect the result.

If the Illinois Bell purchases a fair cross section of the Western Electric manufactures for a particular year, the adjustments on the Illinois Bell business would not affect the results of that business in a dissimilar way than they would affect the results of the balance of the System. By a fair cross section, I mean that the Illinois Bell would purchase approximately the same percentage of each of the

various items which the Bell System as a whole purchases from us. In other words, that they would purchase about the same percentage of total machine switching as the percentage of total Illinois Bell purchases are to the total Bell System purchases. To illustrate, if the Illinois Bell percentage of sales was 8 per cent of the total sales to the Bell System (that is an assumption), they would purchase about 8 per cent of the total sales of subsets made to the Bell System during that particular year.

"Q. Then it is your idea of a fair cross section in 1923 that if the Illinois Bell bought 8 per cent of the total number of dollars represented by the dollar sales of telephone apparatus, that that means that it bought 8 per cent of each of the 20,000 items that make up telephone apparatus, is that correct?

"A. I think that is correct, in the main. That is, we expect that if they have bought, say, fifteen millions of dollars in any one year, and our total sales are one hundred and fifty million of telephone apparatus, they bought ten per cent of the total.

"Now, we know that, by an actual study, we can find out [fol. 6452] the quantities that have been sold or produced in that particular year, we can find out the quantities that are sold to the Illinois Bell. They will vary, of course; some will be above and below the 10 per cent, but the variation, I think, would not be far from the 10 per cent, on the average."

If the Illinois Bell in 1923 purchased a fair cross section of all of the items of telephone apparatus made by the Western Electric Company in that year, then the adjustments to the items purchased by the Illinois Bell would have the same effect as the adjustments on the items sold to the balance of the System. During the year 1923, the Western Electric Company manufactured several thousand items that come within the one classification of telephone apparatus. I assume that the fair cross section which the Illinois Bell purchased in 1923 was a certain percentage of each of the twenty thousand items. We have, for each of the years, information, of course, as to the total sales of telephone apparatus to the Illinois Bell and also as to the total sales to the Bell companies. We also have information in some of the years for the quantities of items; I do not recall whether we had this information for 10 years.

At the time I made this study, I did not have the facts as to whether or not the Illinois Bell purchased in each of these 10 years the percentages of the particular items making up telephone apparatus, but it is perfectly common sense; knowledge of the business would enable anyone to say with assurance that the purchases of the Illinois Bell are a fair cross section of the purchases of the whole Bell System. They might vary in different years; they might go up in one year and down in another year; I do not know. I think it is the cross section for a period of years that is determining.

"Q. Well, then, you are changing your answer, that it is not the cross section for the particular year that is involved, but over a period of years?

"A. Yes, and I think over a period of years it is determining."

I do not have any information for any particular year. My [fol. 6453] testimony on this subject is directed to a period of years. I cannot draw any conclusion as to whether the adjustment in a particular year will have the same result on one customer's sales as it will on another's. The adjustment is so small it will make no difference. Common sense would indicate that it would be absolutely an unnecessary and very expensive process to attempt to get any further refinement of the facts of that allocation. The fact is we have not done it; we do not think it is necessary to do it.

The exhibits are predicated upon the proposition that over a period of years the Illinois Bell has purchased a fair cross section of the Western Electric manufactures. This study is for a 15-year period. We had some information which indicated that the Illinois Bell purchases were a fair cross section over a period of years. I did not have any facts showing what percentage of each of the one hundred thousand different parts manufactured by the Western Electric over the 15-year period was purchased by all of the Bell customers and what percentage was purchased by the Illinois Bell during the years. We did have facts showing what percentage of the total of certain subclasses that make up telephone apparatus was purchased by the Illinois Bell over the period of years. That information was obtained subsequent to the making up of these exhibits, and shows a fair cross section, in our judgment. We received figures showing that the Illinois Bell purchased over the period of years a certain percentage of each of the separate subclasses. I

think, as I remember it, there may have been twenty-five or thirty main subclasses of telephone apparatus. The information was in quantities of items only and not in dollars. I do not recall the period that it covered.

We had prices during the year 1923 and made profits on the sales of items covered by those prices. To arrive at those profits, we made adjustments in that year to the basic gross profits, and then arrived at our gross profits. The prices are the same to all Bell customers. We average the adjustments to the basis gross profits over all the costs, but it is similarly affecting all of them. The adjustments in a [fol. 6454] particular year may increase the profits and in another year they may decrease the profits. In the 10-year period 1921 to 1930, the increases in the profits and the decreases in the profits practically offset each other. In manufacturing companies such as the Western Electric, I think you have to take quite a period of years in order to get a fair idea of what the results really are. No one year is representative.

We determine prices in the following manner: first, we take the prices that are in effect at the time and take into account the estimates of the volume of business we expect to get from the telephone companies in the following year. If, by that volume of business, we find that we are going to get a return on the investment that is more than we expect, then we have to reduce our prices.

If the net profits of the Western Electric Company for the year 1923 were 25 per cent, I should think the prices were altogether too high.

In Exhibit A-78 is shown a net return on investment of 10 per cent for 1925. That is the computation that we made at the time as to the amount of money we earned in relation to the investment as we have computed it in that particular year. If, for any particular year, we made 10 per cent on investment, as we did in 1925, it would indicate that we were making a fair return on the investment for that particular year. It might very well be that we ought to have made considerably more than 10 per cent in that particular year, in order to take care of those years in which we made less than 10 per cent. What we are attempting to do is to get at least 10 per cent over an average period of time. We have used the same figure of profit in the computation for the Illinois Bell. We have assumed the same rate of profit applies to the Illinois Bell as to the Bell System as a whole.

"Q. How can the profits on the Illinois Bell business as a whole in the year 1925 be representative of the profits of the Illinois Bell purchases, if you don't know what ratio of the [fol. 6455] items manufactured in 1925 for the entire Bell System was purchased by the Illinois Bell itself?

"A. Well, we know, Mr. Goldstein, that every telephone company in the United States, associated company, buys proportionately about the same ratio of the various items that the other companies do."

This ratio might vary by years, but over a period of years it is the same. I do not know about any particular year, but I think they all need the same kind of plant, central office equipment, subsets, lead covered cable, line wire, and poles. In proportion to the number of subscribers they have, they probably need just about the same percentage of each item.

I do not know whether each company in the Bell System had the same program for machine switching for each year. I have taken account of a period of years. I assumed in any particular year that the Bell System ratio was the ratio for the Illinois Bell, but whether it was or not, in the next year, if it wasn't, it would average out, so over a period of time we would get correct results.

March 17, 1932.

There was no change in the general price levels of the Western Electric Company in 1931. The rise in 1930 is due to the fact that the reductions we made July 1, 1929, when we anticipated a large increase in the volume of business, were too much. We found that, instead of getting an increase in business, business was falling off. We had followed the policy from 1921 (and in general) of making reductions in prices to Bell Companies and to all of our customers, consistent with a fair earning on our investment. Even during those years when other manufacturing companies were increasing their prices or keeping them up, we were reducing our prices. Around July 1, 1929, we found that our prices would have been too high on the volume expected for 1930, but at the end of 1930 we saw that our busi- [fol. 6456] ness was slipping away and in order to get fair earnings on the investment it was necessary to increase the prices.

The reduced prices in 1929 were in effect from July 1st of that year; in the early part of the year they were higher than the July 1 prices. We expected that our earnings would be

more for the year 1929 than we actually got for the year. Conditions in 1929 were chaotic. We knew that we were going to get a big volume of business and so had to increase our forces to such an extent that our costs went up; that is, the level of efficiency went down. In the month of September alone we took on 7,500 employees in order to get 2,500 employees net. That was a very expensive process, and as a result of that inefficiency, due to the rapid increase in our forces and even in spite of the volume of business we got, the net earnings on our business for the year were less than we expected.

The earnings on investment for the 1929 Bell business were 8.5 per cent, as shown on Exhibit A-78, and that was less than we had expected. I have quite clearly in mind that I made a study that indicated that if the orders continued at the rate they were at that time our fair earnings on the investment would have been 13 per cent or 14 per cent. Our volume did not decline in 1929, but the conditions of turning out that output in rented quarters scattered through various localities and with unskilled labor brought the earnings down.

We first began to know that there was going to be an increase in volume in 1928, and I think we did some of the renting of these extra quarters in 1928. I have not in mind the figures showing the amount of the quarters rented after July, 1929, and those rented before that date, but I will furnish the figures to the counsel for the defendants.

I do not know the number of foremen we took off of their regular jobs to train new men before July 1st nor after July 1st. I have not those facts and I do not know whether they are available, although I presume they are.

It was generally known throughout the Company at the [fol. 6457] time that the decline in our earnings was due to the fact that we took men off from their jobs and had to train new men. I know from general information that it was hundreds of men that were so taken off their jobs, but that information was altogether general hearsay.

The non-Bell prices also went up in 1930; there was a general increase in the level of prices on our telephone apparatus sold to Bell and non-Bell customers, but no general increase in special commercial products. I do not know just how much special commercial products went up. The prices in general, outside of those for goods sold to the Bell System, are governed in part by competitive conditions. In

1930, the prices went up to the non-Bell as well as to the Bell customers. I do not have in mind the figures in dollars of sales of special commercial products to non-Bell customers. We furnished to defendants a statement showing in dollars and by years what portion of special commercial products were sold jointly to Bell and non-Bell. I do not have that information by items. If there was any increase in price at all on an item which was sold jointly to Bell and non-Bell customers, it would apply to that item, whether sold to the Bell or non-Bell customers. Of course, I am testifying to the average price level and not to any particular item.

There is more than one item of special commercial products. I have no knowledge as to what the price change was, applicable to special commercial products sold to other than Bell customers. I do not know whether there was any such price change.

The actual 1931 figures for Exhibit A-80 are as follows: under the column Sales, $9,421,000; under the column Total Cost of Sales, $9,572,000; Net Profits, a red figure of $151,000; Per cent Net Profits to Sales, a red figure of 1.6 per cent; Average Investment, $11,947,000; Per cent Return on Investment, a red figure of 1.3.

Taking the figures that I gave for Exhibits A-78 and A-80, we made $10,500,000 on Bell business in 1931 and lost $151,000 on non-Bell business. The return on investment for the year 1931 on Bell business was 3.9 per cent, and on non-Bell [fol. 6458] was a red figure 1.3 per cent.

I have the total figures for the entire period 1916 to 1931, inclusive, for the non-Bell business, which are as follows: Sales, $695,714,000; Total Cost of Sales, $665,271,000; Net Profits, $30,443,000; Per cent Net Profits to Sales, 4.4 per cent; Average Investment, $303,775,000; Per cent Return on Investment, 10 per cent.

The net profits to sales for Bell business in 1930 was 3.4 per cent; in 1931 it was 4.8 per cent. On the non-Bell business it was 5.5 per cent in 1930 and 1.6 per cent in the red in 1931, We increased our ratio of net profits to sales on Bell business in 1931 over 1930 from 3.4 per cent to 4.8 per cent, but on our non-Bell business the ratio of net profits to sales declined from 5.5 per cent to minus 1.6 per cent. That is, the ratio of net profits to sales increased in Bell business and there was no net profit in 1931 for the non-Bell business.

When the International Western Electric Company was formed, it purchased part of its manufactures from the

Western Electric Company in this country. Of course, whatever manufactures were made in this country carried a loading for development expenses in the price that was made to the foreign companies. That is the development expense made after the organization of the International Western Electric Company; we charge off development expense currently year by year.

There was an interchange of patent rights between the International Western Electric Company and the Western Electric Company. The International Western Electric Company had the right to file in foreign countries whatever of the Western Electric Company patents they thought were necessary. Of course, they only used that right to a limited extent. They paid nothing for that right and neither did we pay anything for the right to the patents resulting from inventions made by them in foreign countries. The International Western Electric Company had a Department of [fol. 6459] Development and Research; they did development and research. I cannot tell you how large that department was as to numbers, but they expended quite a number of millions of dollars during this period in the development of apparatus which is adapted to foreign use. In foreign countries they have their own ideas as to what kind of apparatus they want. The International had the right to use all of the patents already owned by the Western Electric Company at the date of the organization of the International as we had the right to use their patents in this country. The International Western Electric Company was organized in 1918 and it paid nothing for the right to develop and use the patents theretofore developed and owned by the Western Electric Company.

The Electrical Research Products Company had the right to use the patents of the Western Electric Company, owned by it at the date of the organization of the Electrical Research Products Company in its particular field, which was the sound picture field. The development expense after the organization of the Products Company was borne entirely by that company. As to all of the patents of the Western Electric Company in existence at the time of the organization of the Products Company, it had the right to make use of them in its field in so far as they were of any value to it. It has paid royalties to the American Telephone and Telegraph Company for that right. It has paid no royalties to the Western Electric Company, but as a result

of the business with the Products Company there has been a large volume of manufactures placed in our factories and development expense has been spread on products delivered to that company in sound pictures as well as on Bell products. As the result of that (and without any specific development on sound pictures in the Western Electric Company) there has been something like $3,500,000 charged in the prices to the Products Company which otherwise would have been included in the cost of sales on Bell business. We suffered a loss in 1931 on the total non-Bell business. Except in so far as expenses of selling to distributors may vary from expenses of selling to the Bell customers, [fol. 6460] there would be no variance in the net profit on items which are sold both to the Bell and the non-Bell customers. The loss on special commercial products is primarily due to the loss on sales of aviation equipment. We have had considerable commercial development expense in connection with that equipment and the volume of business has not been large enough for us to recover that expense and make a profit. We have lost money on the aviation business as there is a small market for that equipment. Only a few of the aviation lines have adopted this radio equipment, but, of course, as the aviation field develops that loss may be recouped in the future.

If there were in that year any commercial development expenses for items that have not yet been commercially materialized as commercial products, that would, of course, reflect as a cost in that year.

I think in general it is considered sound accounting practice to charge off development expense currently. I know that some companies have capitalized it to some extent but are very careful to mention that fact in the annual report and I know from a financial standpoint the bankers in loaning to them are questioning that practice very seriously.

I do not know what the practice of the 88 companies shown on Exhibit A-85 is with respect to development expense. I obtained all my information concerning these companies from Poor's and Moody's Manuals. I do not know whether there is any mention there as to how they have charged their development expense. I do not know whether Stewart-Warner does defer the charge but I would be very much surprised if there was a large percentage of the companies that did it. Some companies might charge the development expense for new and im-

proved products to surplus. I should think that if we knew definitely that the development expense of a company on Exhibit A-85 is not included in cost and we knew what that development expense was, an adjustment should be made in the exhibit to make it comparable to the Western Electric Company where we charge all of the development expense currently into the cost of sales. To the extent of [fol. 6461] whatever the adjustment amounts to, the company would not be on a comparable basis; the adjustment might be little or much.

The Graybar Company does not exploit Western inventions. All it does is to distribute the products of the Western Electric Company; this constitutes about 14 or 15 per cent of Graybar's business. The rest of its business consists of buying from various manufacturers electrical supplies and selling them to consumers.

(Statement showing Graybar Electric Company sales and estimated net profits on Western Electric manufactures 1926 to 1928 was marked for identification as Defendants' Exhibit D-49; statement showing Graybar Electric Company earnings for the years 1926, 1927 and 1928 marked for identification as Defendants' Exhibit D-50; statement of assets and liabilities of Graybar Company 1926 to 1928 marked for identification as Defendants' Exhibit D-51.)

These statements marked D-49, D-50 and D-51 are correct.

The total sales of the Graybar Company for the year 1926 amounted to $76,588,000. Of this amount $12,172,000 was Western Electric manufactures. The net profit to Graybar on Western Electric manufactures was $1,204,000 and the total profit for the year was $1,348,000. In other words, the Graybar Company, paying the same or higher prices for our manufactures as the Bell Companies, was able to sell in competition with other manufacturers throughout the country and make $1,204,000 in that particular year. For the balance of $64,000,000 representing merchandise purchased from other manufacturers, the Graybar Company was able to sell to its customers in competition and make $144,000.

In 1927 the total sales of Graybar were $68,712,000, of which $9,020,000 was merchandise of Western Electric manufacture. The net profit on Western Electric manufactures was $993,000, while on non-Western Electric man-

ufactures there was a profit of $771,000. This shows that on the non-Bell business of $59,000,000 in 1927 Graybar [fol. 6462] made some $700,000, or five times as much as was made from the non-Western Electric manufactures in the previous year; that is, conditions were different in 1927 and they were able to make a good deal more money than they did the previous year on the purchase of supplies from others.

In 1928 Graybar sold $9,789,000 of Western Electric manufactures, on which the profit was $1,097,000; they sold about $63,000,000 worth of non-Western Electric manufactures, on which the profit was $1,450,000. The sales in dollars of non-Western Electric manufactures was about seven times as much as the sale of Western Electric manufactures.

I have my working papers showing the details of the assets and liabilities of the Western Electric Company which I used to arrive at the average investment shown on Exhibits A-77, A-78, A-79, and A-80. In arriving at average investment, we deducted the current liabilities, but did not deduct interest-bearing indebtedness of any kind, whether it was demand paper, three months paper, six months paper, twelve months paper, or two year paper. In some of the years we deducted and in some of the years we did not deduct the notes representing loans from the American Telephone and Telegraph Company to the Western Electric.

(Sheets given defendants by the Comptroller's department of the American Telephone and Telegraph Company representing loans to the Western Electric Company were marked for identification as Defendants' Exhibit D-52.)

The loans made by the American Telephone and Telegraph Company to the Western Electric Company in general were made on demand; sometimes they were outstanding for a considerable length of time, but it was the understanding that we could pay them off as necessary. These loans were notes payable in each case. I think they were by the terms of the instrument demand liabilities, although some of them may have been on the time basis. They were repaid as we had surplus cash beyond the particular needs of our business. In the earlier years, the interest rates were [fol. 6463] the prevailing rates at which we could borrow money on the open market. In the earlier years, we were accustomed to borrow money from banks and when the

American Telephone and Telegraph Company had surplus funds an arrangement was made with them whereby we would pay, on the average, about one-half of 1 per cent above the Federal Reserve Bank rate. In those earlier years, the American Telephone and Telegraph Company substituted as banker for our current loans. By "earlier years", I refer to the years prior to 1928 and 1929.

"Q. There are loans here I notice in 1922, 1923, 1924, 1925, 1926 and 1927. Those are the years you refer to?

"A. I think that is right.

"Q. Yes.

"A. (Continuing.) Although of course I have not examined that statement carefully.

"Q. Now, the rates indicated here show 3.5 and 4.5, with a high of 6 per cent in 1924 for several months, but excluding that, it is usually 4¾ or 5 per cent; is that about the rate?

"A. That would be the rate that I would expect to see there, as a result of our practice at that time.

"Q. Yes.

"A. (Continuing.) Determining the rate of money."

Subsequent to 1927, there was a change in the arrangements between the Western Electric and the American Telephone and Telegraph Company. I do not remember the exact date, but about 1927 the American Telephone and Telegraph Company had, through a stock issue, a large amount of money on hand which they were temporarily investing in Government securities. At the same time we were engaged in a large plant extension program and there was an agreement at that time that the American Telephone and Telegraph Company would advance us sums as we would need them up to a maximum, I think, of $50,000,000 at a rate of interest which I think was 6 per cent. I don't remember just what year this was, but I think it was around 1928 or 1929. This statement shows that it was in 1929 the loans were made on that basis. These loans are included in [fol. 6464] the payables which I have not deducted as current liabilities in determining average investment.

In October, 1930, the Teletype Corporation was purchased by the Western Electric Company. The mechanics of this purchase were as follows: the Teletype Corporation exchanged 150,000 shares of its stock for 150,000 shares of American Telephone and Telegraph Company stock. The

Western Electric Company on the same day purchased the Teletype stock from the American Company for $30,000,000 and borrowed the money necessary to make that purchase from the American Telephone and Telegraph Company.

The Teletype Corporation sold 150,000 shares of its stock to the American Telephone and Telegraph Company in exchange for 150,000 shares of the stock of the American Telephone and Telegraph Company. The stock of the American Telephone and Telegraph Company was a hundred dollar par value stock but had a market value at that time of something like $215 per share. The Western Electric Company purchased the Teletype Corporation from the American Telephone and Telegraph Company and borrowed that $30,000,000 from the American Company. That $30,000,000 is the loan which is included in the payables.

(The statement furnished to the defendants by the Western Electric Company showing the balance sheet of the Teletype Corporation as of September 30, 1930, was identified as Defendants' Exhibit D-53. A statement likewise furnished defendants by the Western Electric Company purporting to explain the purchase of the Teletype Corporation was identified as Defendants' Exhibit D-54.)

The consolidated earnings statement of the Western Electric and subsidiaries includes the investment in the Teletype Corporation for 1930 and 1931. The investment included for that corporation is the $30,000,000 with whatever variations there may be from that figure; that is, subject to errors and additions or differences in plant valuation. The balance sheet of the Teletype Corporation as of [fol. 6465] September 30, 1930 (Exhibit D-53) is the balance sheet as of the date of the sale and is before giving effect to the purchase by the American Telephone and Telegraph Company.

The balance sheet of the Teletype Corporation on October 1, 1930, is exactly the same as the balance sheet of September 30. There was a change in the balance sheet at December 31, 1930, to give effect to the investment of the Western Electric Company. I have a statement showing that.

(Which said statement was marked for identification as Defendants' Exhibit D-55.)

This change in investment is reflected in the second line in the second column of Exhibit D-55, where there is shown

in the balance sheet (as of December 31, 1930) an item of goodwill of $23,813,000. That accounts for the major portion of that change.

The Teletype Corporation prior to its sale to the American Telephone and Telegraph Company had a Department of Development and Research which employed, as I recollect it, 81 people out of a total of about 1,500 employees in the Corporation.

"Q. And on January—the payroll for the Development and Research Department was $16,000 for the month of September, 1930, and your payroll for the entire organization of the Teletype was $246,000 a month.

"A. I think—that sounds right, Mr. Goldstein. I do not carry those figures in my mind.

"Q. And the same—the Development and Research Department of the Teletype Corporation has continued about the same since that time, has it not, as far as the employees and the functions are concerned?

"A. Well, I know that they have continued their development.

"Q. Yes.

"A. (Continuing.) To what extent there have been changes one way or the other, I am not informed.

"Q. They have maintained their Development and Research Department since?

[fol. 6466] "A. So far as I know.

"Q. And in 1931, November, which is the figure—the date of which we have the figures taken from some statements which you have made available to us, we find that there were 71 employees in the Development and Research Department, with a payroll of $15,000 per month, January, 1932, and there were about 822 employees for the Teletype Corporation, with a payroll of $116,000 per month.

"A. I think that is correct."

Other than the loans by the American Telephone and Telegraph Company which I have already described, there is included in payables, outstanding debentures of $35,000,000. There are also loans that have been made to us by the Trustee under the pension fund plan of approximately the same amount. These loans are made from the Trustee under the conditions I have previously described and all bear interest at the rate of 5½ per cent. The annual report

to the stockholders shows the exact figures at the end of each year. We have not included these loans from the Trustee as a current liability. The loans are demand loans.

The reason why it was decided in 1927 to deposit pension fund money with the bank, rather than to carry it on our accounts as before, was because about that time there was an Act of Congress which made pension accruals a proper deduction in determining income tax if the accruals were deposited with a trustee. We made this arrangement with the Trustee and paid the money to the Trustee and since that time have been able to deduct the current accruals and also the interest that we paid the Trustee in determining our net income for Federal tax purposes. Prior to 1928 we had an employees' benefit fund. In arriving at our average investment for the years 1916 to 1927, we did not make any deductions for reserve for pension funds.

We also had working reserve which included such items as this moving reserve that I have described, and other reserves of an estimated nature representing the difference between what our books indicated would be shown for a particular period and what we felt from past experience [fol. 6467] the results would actually be at the end of that year. In connection with these reserves, we set up the proper proportion of what we expected we would need for the year, and apportioned it to that particular month, and set it up in that particular month. The next month would be a varying amount, the next a similar amount, and so forth; it was the average of all of those. It would not be on a sinking fund basis.

The aggregate amounts of these working reserves included in our liabilities were as follows: 1931 $4,921,000; 1930, about $7,800,000; 1929, $9,800,000; 1928, $6,900,000; 1927, $11,100,000. I have only these figures back to 1927. $9,900,000 is approximately correct for the aggregate amount for 1926. There was no working reserve included for previous years.

In arriving at our average investment, we made no deduction whatever from the book cost of plant for depreciation.

I think the option the Western Electric Company had on the stock of the International Telephone and Sales Corporation, of which I spoke, was in writing. I have never seen a copy of that option and I think it would, naturally, be surrendered on the sale. I have not a copy in my pos-

sion and to my knowledge the Western Electric Company has no copy. The option provided that the Western Electric Company, on the payment of approximately $800,000 (with certain adjustments for dividends), could acquire the capital stock of the International Telephone Sales and Engineering Corporation, which owned control of the Automatic Electric Company.

The Automatic Company made a series of contracts with Western, beginning in 1919, by which it was to manufacture for us certain step-by-step equipment which is sold by the Western to the Bell customers. There was a provision in the contract whereby advances could be made to the Automatic against shipments to be made in the future. What this meant was that the Automatic Company got its money for sales to us in advance of shipment, and paid us interest [fol. 6468] for the period of time intervening between advance and the normal date of collection.

The Western Electric Company did not, to my knowledge, pay off a mortgage or bond issue of the Automatic as a part of the same transaction, nor did it advance any large sum of money to the Automatic. There have been payments made to the Automatic Company for licenses and patents; a complete list of these payments have been given to the defendants and are indicated on Defendants' Deposition Exhibits 189 and 190.

This option was given to the Western Electric Company in 1924. At that time the contract for the purchase of the Automatic manufactures by the Western Electric Company had expired and a new contract was in process of negotiation. The Western Electric Company felt that it should obtain the option (and the people who owned the stock were willing to give it) for the purpose of assurance that the quality and price of the apparatus delivered would be satisfactory to us.

There was a prior option given in 1919, running to the American Telephone and Telegraph Company. The American Company got an option when the first contract was made with the Automatic. At that time the Western Electric Company made this arrangement for the purchase of manufactures from the Automatic for a period of five years. The same reasons that influenced the acts of the Western Electric Company to secure its option influenced the American Telephone and Telegraph Company to secure its option; that is, to insure quality and price of products.

The American Telephone and Telegraph Company was not a party to the contract between the Western Electric Company and the Automatic Electric Company. I do not know how the option came to run to the American Telephone and Telegraph Company, nor the reason for it. The option to the American Company ran for five years, 1919 to 1924, and expired by its own terms.

The contract made by the Western Electric Company with the Automatic Company in 1924 covered about the [fol. 6469] same subject matter as the prior contract; that is, the purchase of products which were to be sold to Bell customers. This time, however, the option ran to the Western Electric Company. The period of this option was for five years and no money was passed for it. When the Electrical Research Products was formed in the latter part of 1926, this option was included among the non-Bell assets transferred to it. No value was placed on the books at the time of the option; its value was not known at that time.

I was not a party to the negotiation, but I know the facts concerning the circumstances under which the option was surrendered. In May, 1927, it was decided the Western Electric Company would not want to exercise the option. We were manufacturing step-by-step equipment in our own factories and in looking to the future, we saw we could very well take on the entire manufacture of automatic equipment at a later time, if we cared to do so. We entered negotiations with the former owners of the property and they were interested for a number of reasons. They were afraid, I think, that the option might pass to someone other than the Western Electric Company and they were anxious to acquire control of the company because at that time they were buying up independent telephone companies throughout the United States and expanding rapidly in Europe. This factory was the manufacturing department for such purchases.

At the same time they were interested in negotiating a contract with the Western Electric Company for a longer period and such contract was negotiated from the period 1927 through December 31, 1936. We had a five-year contract in 1924 which would run to 1929. We surrendered the option to them for $4,000,000 in 1927. We then made a new contract to continue the manufacture for the Western Electric Company for ten years from 1927; that is, expiring the last of 1936. As I remember it, the minimum volume to be purchased under the new contract (which is the one now in

force) is something like $2,600,000 per annum, the previous contract was for $3,000,000 or $3,300,000 per annum. I did not say that our purpose in surrendering the option was [fol. 6470] because we felt we would do all of the manufacturing ourselves. What I said was that we might be in a position later on to do so, if we wanted to. By later on, I mean subsequent to 1937.

The $4,000,000 received by Electrical Research Products for this option is not reflected in our Exhibits A-77 and A-78, which show the earnings on the Bell business. It is considered as a non-Bell asset. That is, as part of the earnings of the Products Company. Products Company earnings are not in the non-Bell earnings in our exhibits, but are considered in the Electrical Research Products. They form part of the earnings from which the Western Electric Company receives dividends, and part of the earnings from which the Western Electric Company received the $48,000,000 dividend in 1927.

The other sources from which this $48,000,000 dividend was derived were as follows: when the Products Company was formed in 1927, it was not only for the purpose of exploitation of the sound picture business and other specialty products, but it also took over some of the non-Bell assets of the Western Electric Company (consisting mostly of securities and a million dollars of cash) aggregating $41,000,000. That was the situation at the beginning of 1927. During that year there was this receipt of $4,000,000 from the Automatic Company on the sale of the option; there was also a receipt from the final adjustment of the war claim at Antwerp (which was an asset of the Products Company) amounting to some $1,800,000. In that year we wrote up the book value of the Graybar and Northern Electric stock to more nearly represent our interest in the undistributed earnings and capital of those companies. There were also some royalties received during that year and a loss on the sound picture business of approximately $1,000,000. The net results of all these transactions meant that at the end of the year we had a capital of $1,000,000 in Electrical Research Products and a surplus of some $51,000,000. At that time it was decided that there should be a distribution of these assets which had been accumulating over a [fol. 6471] long period of years on non-Bell business, and special dividends were declared, aggregating about

$48,750,000. This dividend was paid to the Western Electric Company and it in turn paid it to its stockholders, without clearing through our surplus account.

On December 31, 1926, the Western Electric Company had in its possession about $21,000,000 of Liberty Bonds and about $9,000,000 of Treasury Notes, aggregating about $30,000,000. These thirty million dollars of Liberty Bonds and Treasury Notes formed a part of the payment of the dividend; in other words, the dividend was paid in part by these Notes and Liberty Bonds. We took whatever assets we had, whether cash or securities, to enable us to pay that dividend.

The thirty million dollars of Liberty Bonds and Notes were turned over to the Electrical Research Products on January 1, 1927. They were not needed as working capital of that company but were part of the non-Bell assets which the Electrical Research Products had been formed to take over. We turned over to the Products Company a large part of the non-Bell assets. We did not turn over to the Products Company those non-Bell assets included in the exhibits as non-Bell assets for 1926 nor for 1927, because they represented the portion of our manufacturing plant devoted to non-Bell business; we would not turn that over to the Products Company. We also had some cash receivables. The Liberty Bonds and Treasury Notes which we turned over to the Products Company were assets of the Western Electric Company not needed for operating purposes. These Notes and Liberty Bonds were in the treasury of the Western Electric Company for some period of time, maybe a year or so; I do not recall how long. The cash with which we purchased these Bonds and Notes came from whatever cash sources we had. In a large part, you have to go back for this cash to the sale of the International Western Electric Company, from which we received a large amount of money.

In 1925, when we apportioned the cash between Bell and [fol. 6472] non-Bell, we apportioned some $24,000,000 of that cash as working capital for Bell business. As I recall it, in that year the large amount of cash we had on hand represented notes of telephone companies; I think the Pacific Telephone and Telegraph Company and some other certificates. There were also certificates of deposit that we had in bank at the time.

The International Telephone and Telegraph Company rned over to us $25,000,000 in bonds in 1925 under an greement whereby we were to get, by October of that year, 3,500,000 in cash, as part of the purchase price of the In- rnational Western Electric Company. We did receive at cash in that year.

It is pretty hard to pin down the cash with which we pur- ased the Liberty Bonds and Treasury Notes to any par- ular time. So far as the apportionment of the invest- ent is concerned, any securities which we have been dis- sing, that is, Liberty Bonds and Treasury Notes, would included in Sundry Investments and not included in in- stment in operations.

"Q. Did you or did you not include the cash received om the International Western Electric Company as the sh which was apportioned between the Bell and non-Bell siness in 1925?"

Whatever cash we had on hand in 1925 necessary to carry the Bell and non-Bell business would be apportioned operly between the Bell and non-Bell business regardless the sources of that cash. I think that we considered that the cash we had on hand in that year was devoted either Bell or non-Bell business.

We did not purchase those Liberty Bonds or securities th the cash received from the International Western lectric Company sale the moment we received the cash. I ink the proceeds of that sale were used to retire the pre- rred stock that was outstanding at that time.

The large amount of cash which we had in the year 1925, e got out of the general resources of the business.

When it comes to the apportionment of cash, the Western ol. 6473] Electric Company is in a peculiar position. It s been able to carry on its operation with a relatively all amount of cash for the reason that it has been able to t its money from the American Telephone and Telegraph mpany on short notice. It has not been necessary to ve large amounts of cash, such as the General Electric mpany has (where they have $140,000,000 to $150,000,000 d up). I think the amount of cash applicable to Bell siness and non-Bell business over this fifteen-year period an extremely low amount to carry on the immense busi- ss that we have had during that period although it may be rticularly large in one year. In a particular year it

might be a little high and in some years it might be a little low, but over the average, in my opinion, it is much lower than we would ordinarily expect a manufacturing corporation to have.

We received $29,000,000 in cash from the sale of the International Western Electric Company, which was used to retire outstanding preferred stock.

Statement entitled "Analysis of average investment in operations, Bell business, years 1916 to 1930, inclusive," identified as Defendants' Exhibit D-56; statement showing "Average investment non-Bell business, years 1916 to 1930, inclusive," identified as Defendants' Exhibit D-57; statement showing "Analysis of Bell plant by classes of property for the years 1926 to 1930, inclusive," identified as Defendants' Exhibit D-58; statement showing "Analysis of non-Bell plant by classes of property for the years 1926 to 1930, inclusive," identified as Defendants' Exhibit D-59; statement showing "Average investment in Bell business divided between manufacturers and supplies, 1916 to 1930," identified as Defendants' Exhibit D-60.)

The statements just identified are correct.

Exhibit D-56 shows $24,000,000 in cash as part of the Bell investment for the year 1925. It shows $8,000,000 for the previous year. That represents the difference in the cash we had on hand between the two years; the cash increased. The $8,000,000 might have been altogether too low to carry [fol. 6474] on the manufacturing business of the Bell Companies in 1924, and I am not sure but that $24,000,000 might have been too low under the general conditions of 1925. Exhibit D-57 shows that $3,000,000 in cash was allocated to non-Bell business for 1925.

"Q. In the year 1925, you show that the Bell business, in Exhibit A-77, was $226,000,000. In each year thereafter you show sales from $241,000,000 to $338,000,000 in Bell business. Your cash for the years subsequent to 1925 ranged from $4,000,000 to $9,000,000. Was there a shortage of cash in the subsequent years necessary for your business, for your Bell business?

"A. Mr. Goldstein, of course, this apportionment that we have made has been made year by year currently. That is, in 1917 we made the apportionment for 1916, and so on all the way through and these are the figures resulting from

that apportionment made currently for the administrative purposes of the Company. Now, when we came to 1925, we had this large amount of cash on hand, and we apportioned it, certificates of deposit——"

The exhibit represents allocations which were made for administrative purposes.

I think that the exhibit indicates the allocation of assets necessary, on the average, in the particular year for the sales to Bell customers. So far as cash is concerned, I would think that a percentage of less than 6 per cent of the total investment in cash would be a very modest amount to include during this period.

"Q. That is, your allocation in each year of assets is as you found them, without going into the question whether in the year 1925, for instance, $24,000,000 was really necessary for the Bell business?

"A. We made up this exhibit, as I stated before, from the records, that we made currently, year by year, long before we thought of any rate case at all, Mr. Goldstein.

"Q. Will you please answer?

"A. And they were used for administrative purposes, and, if you should go back now, in the light of present infor-
[fol. 6475] mation, you would make changes all the way through. Now, my estimate of what that change would be as a whole, would be that there would be practically no difference in the rate of return, even if we made all of the adjustments we might consider necessary."

If I went back now and revised the administrative reports, those revised reports would contain the same items as now appear in Exhibit A-77 for each of the years; there might be varyng amounts up or down.

"Q. So that the figures in D-56 which show $24,000,000 in cash for the year 1925, as average investment in cash for the year 1925, is not intended to contain the number of dollars of cash which was necessary in the Bell business in that particular year, is that correct?"

As far as any particular year is concerned, there might be changes that could be made, but, as I said before, you have to consider these exhibits over a period of years for a manufacturing business. In any particular year you might want to change one figure and that might readily be less

than is shown there. On the other hand, in the other years there might be considerably more cash that should be allocated to the Bell business than we have.

The exhibits showing the average investment in operations represent the amount that we considered as the proper amount in the particular year. That is, in 1926 we considered that a proper allocation against Bell business. If we were to go back now and allocate all of our assets, cash and receivables, merchandise and plant, and reallocate on our profits on the same basis, we would make considerable changes.

In my opinion, I would say that $24,000,000 of cash was not necessary to manufacture the articles and to transact all of the necessary operations to make $226,000,000 of sales to the Bell customers in the year 1925. As is generally known, we do not finance a business in any one year for the needs of that particular year. We might, for instance, put out a bond issue of $35,000,000, as we did in 1924. Now, that was not for the needs of 1924, but was for the needs of succeeding years and in varying amounts. Now, in that [fol. 6476] particular year it might be in excess, but for the average over the whole period of time, I consider the average cash devoted to Bell business is no more than a normal amount necessary to carry on that volume of business, and is less than most industrial concerns would consider as necessary. This apportionment has been made on the basis of the facts as we found them in a particular year, but the explanation I gave as to why cash was high in that particular year is because we do not finance every year. We have to finance for a period of years; we have a bond issue that runs for twenty years.

We issued $35,000,000 of debenture bonds on April 1, 1924, and, as I recall it, got the money from that issue on the same day; I am not sure whether it was all paid on April 1st or was paid in part at later periods in the same year. I think it was all paid in the same year. The proceeds of this bond issue might be in cash or it might have been used to pay off interest-bearing indebtedness during that period.

I cannot say from my own knowledge as to how the $24,000,000 happened to be piled up in 1925. I do know that there was a $35,000,000 bond issue in April 1, 1924, but I do not carry in mind just how the money was disbursed.

have in the court room the facts regarding the amount of cash and the amount of securities on hand on January 1, 1925. At that time we had marketable securities of $138,000 and cash of $9,920,000, or a total of something over $10,000,000. At the end of 1925, we had on hand $10,142,000 in marketable securities and $21,418,000 in cash.

In 1925 we received $29,000,000 of cash from the sale of the International Western Electric. Not all of the cash received from this sale was used to retire our preferred stock. $24,679,000 of preferred stock was paid off; it was called at 110, which would take approximately $26,000,000 or $27,000,000. That would leave approximately $3,000,000 in cash from the sale of the International Western Electric.

We had, at the beginning of 1925, $138,000 in marketable [fol. 6477] securities, and we had $10,000,000 in marketable securities at the end of 1925. In the statement I have here the marketable securities at the end of 1926 are combined with investments. We had $31,000,000 in Liberty Bonds and Treasury Notes alone that we turned over to the Products Company, so we had investments in securities of $10,000,000 on December 31, 1925, and $30,000,000 in securities in December of 1926, which we turned over to the Products Company and which they returned to us as a dividend.

The source of the cash used to purchase the $30,000,000 of marketable securities between January 1, 1925, and December 31, 1925, is easily explained by a comparison of the balance sheet items of December 31, 1925, and December 31, 1926. At the end of 1925, we had $10,000,000 of marketable securities. At the end of 1926, we had $30,000,000 of Liberty Bonds and Treasury Notes, but when you look at the cash item, we had $21,418,000 at the end of 1925 and only $7,450,000 at the end of 1926.

It is absolutely impossible to apportion every dollar of cash received and say just where that cash went. Cash builds up just as it does in any business; it fluctuates from year to year from the normal transactions that we get. If the inventories go down, naturally the cash goes up; if the receivables go up, the cash goes down; if the payables go down, the cash probably is decreased; if the payables go up, you have got, perhaps, more cash on hand. You have to go through the whole process of the receiving and expenditure of cash, item by item.

"Q. Well, now, with those possibilities in view, will you please look at D-56 and D-57, which shows every item of assets, and state which you think, in your opinion, account for the moneys which were used to purchase these bonds?

"A. Well, now, on D-56, for instance, you look at the merchandise item, and you will find for 1924 an average of $70,914,000 of merchandise on hand. For 1925 there was an average of $57,127,000. Now, there is a decrease of $13,800,000. Now, whether it went in the plant, or where it went, I don't know, but certainly there are $13,000,000 which [fol. 6478] came in because of the lower inventory values, inventories that we had at the end of that year."

The Graybar Corporation has, at all times, been considered as a non-Bell asset, and it would not appear in this exhibit at all. I have been talking about Bell business and not non-Bell business. When we organized the Graybar Company, we sold our supply department to it; that was in 1925. The Graybar Company took over the supply business in the United States, and took over the merchandise inventories in that business along with other assets.

The inventory turned over to the Graybar Company is reflected in Exhibit D-57. It shows that for 1925 there was $8,120,000 average inventory, whereas in 1926 it shows an inventory of $3,868,000. That reflects the sale of that merchandise to the Graybar Company and also any other fluctuations in the merchandise on non-Bell business that might have occurred during the year. The total inventory that we turned over to the Graybar Company at the end of 1925 amounted to $4,490,000. The sale to Graybar constitutes a large part of the explanation of that shrinkage in the non-Bell inventory.

As I said before, the merchandise for Bell business was reduced from $70,900,000 in 1924 to $57,127,000 in 1925. That would account for some part of that $24,000,000. It is a reduction of the general assets for the whole business, as a whole, which we have allocated in the method that we have stated which explains the cash on hand at the end of 1925. The non-Bell inventory, except for Graybar, shows no net shrinkage for this year. The shrinkage due to the sale to Graybar did not reflect itself in cash to the Western Electric in 1925.

The securities purchased at the end of 1925 were, of course, purchased from the surplus cash we had on hand

coming from all sources. Whatever securities were purchased in 1925 were purchased from cash that came from the general cash resources of the Company during that year. The difference between the $10,000,000 of marketable securities that we had on hand on December 31, 1925, and the [fol. 6479] $30,000,000 of marketable securities on hand December 31, 1926, would come from cash that we had on hand on December 31, 1925, and from liquidation of any cash assets during the year, and from any other sources of cash that we might have had during that year.

The cash on hand at the end of 1925 certainly was a factor in the total cash which was apportioned between Bell and non-Bell business. The total amount of cash we had on hand on December 31, 1925, was $21,418,000.

"Q. And that $21,000,000 entered into your average balances over the months which you totaled and apportioned in the manner in which you apportioned your cash between Bell and non-Bell business?

"A. Whatever the amounts were, of course.

"Q. Yes.

"A. Varying amounts per month."

The dividend of $48,000,000, of which I have spoken before, represented the liquidation dividend of the non-Bell profits that had been made over the life of the Western Electric Company and its predecessor, the Western Electric Company of Illinois. I know that the earnings on the non-Bell business from 1881 on, on the foreign business and on the domestic business, aggregated an amount in excess of this $48,000,000.

As to whether if we used $21,000,000 to purchase Liberty Bonds that would be necessary cash for the Bell business in 1925, my answer is the same as it has been before that the cash in any one year may be high or low over the period of years. When you find that over the entire period the cash only represents 5.9 per cent of the total investment, or 4.1 per cent of the sales, I think it is a very reasonable amount.

The allocation of the other assets, shown on D-56 and D-57, represents, of course, assets we have on hand. If we have merchandise on hand, it may be high in relation to our sales, but if we have it there, it is part of our investment. If we have our plant there, it is part of our invest-

ment. It may be high for the particular period. It is high now for our requirements, but we have paid out our money for it and it is part of our investment.

[fol. 6480] I have made a study, upon which I based my conclusion that the $48,000,000 dividend represents non-Bell earnings. I have this study here, and it is entitled "Analysis of profits of business, other than with the Bell Telephone Companies, from 1881 to 1927, inclusive."

(Which said document was marked for identification as Defendants' Exhibit D-61.)

The Western Electric Company declared a dividend of $48,750,000 to its stockholders.

The Electrical Research Products during the year 1927 increased its surplus around $10,000,000, as I recall it, of which $5,000,000 were earnings. Included in these earnings was the $4,000,000 on the sale of the option and the war claims which were valued in that particular year. They also included a loss on the talking motion picture equipment of $1,000,000.

This dividend of $48,000,000 was really two dividends, one approximately of $3,500,000, which was considered the current dividend, and the other a special dividend of approximately $45,000,000. Some part of this $48,000,000 came from the current earnings of the Electrical Research Products, although, as will be seen from the statement that I presented to the defendants, the earnings on non-Bell business far exceed the total of $48,750,000.

As I have previously explained, the Liberty Bonds were used as a mechanism of paying the dividends. When the Western Electric Company received the bonds back from the Products Company, it used them as a medium for paying the dividend to the American Telephone and Telegraph Company. At the time when it declared that dividend (December 31, 1927), it also transferred to surplus the reserve for contingencies which was set up on its books, amounting to approximately $6,000,000. That reserve for contingencies stood in 1916 at approximately $4,000,000. The $2,500,000 difference in the reserve for contingencies during the period 1917 to 1927 represented the net increase in the reserve after the operating earnings had been determined; it had no part in these exhibits. This credit to reserve for contingencies is in effect a segregated surplus item; that is, it is after the earnings have been determined

[fol. 6481] No deduction of that amount from gross revenue is made. First we obtain our earnings on the Bell and non-Bell business, which, we will say, is $15,000,000. Now, that $15,000,000 goes into these exhibits. When we get the $15,000,000, we set aside $2,000,000 of that in the reserve for contingencies, which is a segregated surplus. This reserve for contingencies was not deducted from the total of the gross assets less current payables upon which our return was calculated.

In 1930, certain assets were transferred to the Weco Corporation by the Electrical Research Products Company. When the Products Company was first formed, it was intended to take over the non-Bell assets and also exploit the talking motion picture business. As that business grew, however, we decided to confine the activities of the Products Company to the talking motion picture equipment business and to put into another corporation the securities which it held having no relation to the talking motion picture business.

(Document entitled "Weco Corporation opening balance sheet, May 31, 1930" identified as Defendants' Exhibit D-62 document headed "Weco Corporation" identified as Defendants' Exhibit D-63.)

"Q. If the Illinois Bell purchased in 1923 all of the plant items which it had in its plant account in that year, would such purchases also be considered by you as a fair cross section of the Western Electric manufactures for that year?

"A. I can't answer that.

"Q. You don't know?

"A. No. But over a period of years, I feel quite confident that the Illinois Bell buys a fair cross section of all the manufactures of the Western Electric Company.

"Q. But not if it purchased all in one year, you don't know anything about that?

"A. No, I have never made that study."

If the entire plant of the Illinois Bell were divided between the various items that make up that plant, and were compared to a fair cross section of the aggregate of all of the plants of all the telephone companies in the United [fol. 6482] States, I am not so sure but that you would find that it was a fair cross section. I have not made the study,

but it seems to me it is a very reasonable conclusion to come to.

"Q. Have you any opinion as to whether, if the purchases of the entire plant account of the Illinois Bell in 1923 were made on the basis of the prices for the year 1923, that the adjustments on the gross profits of those purchases would equalize in the same ratio as the adjustments on the purchases of the Bell System during that same year, as were in fact made?

"Mr. Thompson: I object to this question, because it contains a wholly impossible assumption.

"Mr. Goldstein: You have reproduced your property on those prices.

"Mr. Haight: I am willing to let it go on counsel's assertion that it is a perfectly impossible assumption.

"Mr. Thompson: All right. We are all agreed."

The apportionment of fixed plant was on the basis of use, as determined by the shop cost of sales; we used the shop cost of sales as a measure of use.

"Q. Now, the shop cost of sales is determined, as I understand it, by taking the opening inventory, by taking the production during the year, and then subtracting the closing inventory, and then from that you arrive at your cost of sales, is that correct?

"A. That, in effect, is true."

The cost of sales takes into account three items: first, the opening inventory; second, the production; and third, the closing inventory. The opening inventory was not produced during the year in which the apportionment was made, but was produced in the previous year, or perhaps more than a year. We used the shop cost of sales for the purpose of this apportionment, excluding administration and things of that sort; that is, we are not using general and merchandising expenses for the purpose of apportioning plant.

Some of the items manufactured during a particular year are sold during that year, and some are not. The [fol. 6483] carry-over of items manufactured in a particular year is not the same proportion of the production of that particular year; it varies. I have never made a study to find out whether the beginning and closing inventories are composed of the same ratio of the different kinds of

piece parts manufactured during that year, but I think that just ordinary common knowledge would indicate that they would not be. The difference between the number of piece parts of each kind of item found in the opening inventory and found in the closing inventory is not in the same proportion each year; I made no study to test out any such thing. The beginning and closing inventories of Bell and non-Bell items, respectively, in any one year may or may not be composed of the same ratio of the different kinds of piece parts manufactured in that year. I do not know whether the difference between the number of piece parts of each kind of item manufactured by the Western in the opening and closing inventories of the Bell and non-Bell business is in the same proportion in any one year. From our experience, we think it irons out over a long period of time and if you apply the rule of reason, you get a correct result.

"Q. Yes. Now, have you any facts other than the rule of reason which led you to this conclusion which you just stated?

"A. Experience."

I made no study on this subject and had no facts before me at any time to form that conclusion; I would consider it a very expensive process, without any practical result being obtained.

The ratio of dollar value of Bell to non-Bell in the opening inventory may or may not be the same as that ratio in the closing inventory in each year; I have never made any attempt to find out, and I do not know.

The jointly used plant, in general, is divided between Bell and non-Bell on the basis of the Company's standard shop cost of sales for that period.

"Q. Now, using seventy-five million as a shop cost of one, and twenty-five million as a shop cost of the other, you get a ratio of three to one?

[fol. 6484] "A. If that was the shop cost of sales in those years, it would be a three to one ratio.

"Q. How do you know that the production in that year for Bell and non-Bell business bore the same ratio as the shop cost of sales during that particular year in which those hundred millions of cost of sales were compared?

"A. I never made a study to find out.

"Q. You don't know. Is it not a fact that in your apportionment of plant, you did not take into account the actual units manufactured during that year?

"A. The point we take into account is, as you have expressed it, Mr. Goldstein, we have taken the opening inventory and the production during the year, and the ending inventory, and apportioned it on that basis.

"Q. Now, in your conclusion there would be this apportionment of Bell and non-Bell on the basis of book cost,—on the basis of shop cost. You assume, do you not, that in each year the ratio of Bell to non-Bell shop cost of sales is the same as the ratio of Bell to non-Bell cost of production during that year?

"A. Now, I am making this division on the basis of shop cost of sales.

"Q. Yes.

"A. Now, I think it is perfectly clear to everybody in this court room just what I mean by that, and I cannot amplify that answer in any way whatsoever, Mr. Goldstein.

"Q. All right. Now, in order to reach that conclusion, would it be necessary that the inventory at the beginning and the end of the year of Bell and non-Bell items were in the same ratio as the Bell and non-Bell cost of production during the year?

"A. You are going right back over the same ground again.

"Q. I am asking you, would it be necessary, or would it not, or you don't know? What is your answer?

"A. I have given you my answer. It is based on the shop cost of sales, and the method I have described in considerable detail, over two or three days, and that is the whole answer. I cannot amplify it any more than I have.

"Q. All right. Is the ratio of the cost of production of [fol. 6485] Bell and non-Bell items each year the same as the ratio of cost of plant and equipment used to produce the Bell and non-Bell items during the year?

"Mr. Thompson: In the interest of time, your Honor, I object to this.

"Mr. Goldstein: This is an entirely different question.

"Judge Wilkerson: I think in the interest of time we will let the witness answer.

"Mr. Thompson: All right.

"Mr. Goldstein:

"Q. You have now the cost of plant, you have now the cost of plant, have you?

"A. I will say that I don't know, I never made the study; I have never made that study.

"Q. You don't know whether the ratio of the cost——

"A. You are talking about items?

"Q. No, I am not talking about items at all. I am now talking about the ratio of the cost of production of Bell and non-Bell items each year.

"A. Yes.

"Q. And the ratio of the cost of the plant used to manufacture items during that year. Is there any relation between one and the other?

"A. Let me state the question as I think you have said it. I don't know as I get it. You are asking me now whether the cost of production of plant in one particular year——

"Q. Cost of production of merchandise.

"A. All right. Start that way, first. Start with the relation of the cost of production of merchandise in one particular year, in relation between Bell and non-Bell, to the cost of the production of plant in that particular year.

"Q. No, to the amount of plant used to produce those items during a particular year.

"A. The amount of plant used?"

We are apportioning the amount of plant used to produce items in a given year according to the cost of sales of the items sold. As to whether there is any relation between the two, I think it is perfectly fair and correct to apportion the plant between Bell and non-Bell on the [fol. 6486] basis of the usage of that plant which we have at that time. At the end of one year we may find that 90 per cent, based on the cost of sales, is applicable to Bell business; the next year may be 85, and in the next year it may be 95. It varies according to the cost of the sales in each and every year.

"Q. Will cost of sales of items which were manufactured in several years give you any measure of use of the plant to produce any items in a given year?

"A. I think that the cost of sales is a very good indicator of the use that the plant is put to."

Questioned by Court:

I know of no other way that we could get at the use of a plant. If we cannot get at it in that way, the problem is unsolvable.

Questioned by Mr. Goldstein:

I do not know whether the cost of equipment used in producing a dollar of Bell business is the same as the cost of plant used to produce a dollar of non-Bell business.

In arriving at the average investment in inventory, we used the monthly balances, except in the consolidated returns, where we had to use the ending inventories for the subsidiary companies. When we used the monthly balances, we used the actual figures and made adjustments each month in so far as we knew them, and then made the final adjustments at the end of the year. I don't know whether the adjustments in December are larger or smaller than those in the other months.

My estimate of the portion of plant which was apportioned on the basis of the shop cost of sales each year would be that it was around 90 per cent; that would be the average, I would say. The portion of the total inventory allocated between Bell and non-Bell based on the basis of shop cost of sales appears in the Exhibits D-56 and D-57; it is purely a matter of computation. We do not apportion our entire inventory on the basis of shop cost of sales, for some part of it was directly allocable either to Bell or non-Bell. I do not know whether our working papers show on their face the amount of inventory directly allocable and which it was not necessary to apportion. I do not know what portion of the cash and [fol. 6487] current payables were divided on the basis of purchases of plant and what portion on cost of sales. I have not examined the working papers in such detail as would enable me to say whether this is shown in them. We make an apportionment of part of the cash and payables on the basis of purchases of plant. I believe the working papers upon which we made the apportionment are in the court room, but I do not know a detail of that sort, which is contained in 107 volumes, aggregating thousands and thousands of pages. I think I have in court all of the working papers that are reasonably necessary to substantiate this exhibit. I have here the consolidated balance sheet and earnings statement.

(Which said document was identified as Defendants' Exhibit D-64; and the explanatory sheet of which was identified as Defendants' Exhibit D-65; the sheet entitled "Net Profits on investment combined, as reported" was identified as Defendants' Exhibit D-66; the sheet entitled "Surplus adjustments made to combined earnings" was identified as Defendants' Exhibit D-67; the sheet entitled "Consolidated earnings of the Western Electric Company and subsidiaries, 1916 to 1930" was identified as Exhibit D-68.)

The consolidated income statement included that portion of the profit on the sale of the International Western Electric Company in excess of the undistributed earnings applicable to the period 1916 to 1931. There was an adjustment made for the Pension Fund to bring it down from the amount we set aside. There was no profit on account of the Graybar sale.

"Q. You did not include in your consolidated statement the $2,000,000 profit on the sale of the assets to the Bell Telephone Laboratories, did you?

"A. No, there was nothing in there. That was a surplus adjustment."

The consolidated statement shows that there are $3,000,000 earnings attributable to the sale of the option; I stated before that the sale was $4,000,000 and the explanation of [fol. 6488] that $1,000,000 difference is this: in the agreement made in 1927, when the sale was made, the agreed upon price was $4,000,000, but $1,000,000 was held in abeyance. If conditions which we thought would prevail in the following years did not prevail, that $1,000,000 would be paid back. The cash was paid in at the end of 1930, but the purchasers of the option are making a claim for that $1,000,000; they are claiming that back and the matter has not yet been settled. The basis of the claim is that the terms and conditions under which they were to pay the $4,000,000 in their mind were not met by the actual conditions that prevailed. There is a letter in existence describing the terms under which the option was sold; that letter is available.

The Bell and non-Bell profits shown in my exhibits are from operating earnings only. The earnings statements of the various companies making up the 88 companies

shown on Exhibit A-85 include operating and non-operating earnings, and the assets used as a basis in connection with the returns of these companies include operating assets and non-operating assets.

"Mr. Goldstein:

"Q. In connection with your two exhibits, one return on investment and the other ratio of profits to sales of the eighty-eight companies, is there any relation between the ratio of net profits to sales of those companies, and the return on their investment?

"Mr. Thompson: As I understand the question, is there a ratio between them?

"Mr. Goldstein: Is there any relation?

"Mr. Goldstein: If a company earns 10 per cent net profits on sales, will it earn 10 per cent on its investment?

"Judge Wilkerson: That depends on how much it has invested, of course.

"Mr. Goldstein: Correct. The exhibits are on the basis that there is some relation.

"Mr. Thompson: Why no; they have set out the facts.

"Judge Wilkerson: I don't understand there is any such relation claimed. They are independent showings.

[fol. 6489] "Mr. Thompson: Why, of course.

"Mr. Goldstein: With the statement of counsel that that is correct, why, we are satisfied."

I stated that I excluded mining companies from the 88 companies. I have not checked over the 88 companies to see if there are mining companies among them. Maybe there are some of them that have mining operations, but they are so concealed that I never ran across them. I do not know whether the Allied Chemical, the Glidden property, the American Cyanide, the Goodyear, the International Harvester, or the Deering have mining operations; I haven't examined it in that detail. Of course, what we are trying to do here is to get representative companies. If they do mining, I presume that their mining operations are almost negligible. They would be put in if the mining operations were negligible.

I would consider a company comparable to the Western Electric Company for the purpose of this comparison that valued its inventory at cost; we value our inventory at

cost, in general, I think, it is market or cost, whichever is lower. If you want to be absolutely meticulous you cannot make your comparison with any company. I do not know whether the Lorillard Company carries its inventory at cost.

The development expense incurred by the Department of Development and Research of the American Telephone and Telegraph Company is all an expense of the American Telephone and Telegraph Company.

(Statement of patents sold and licenses purchased from the American Telephone and Telegraph Company by the Western Electric Company marked for identification as Defendants' Exhibit D-69; statement showing a patent acquired by the Western Electric Company from the Stromberg-Carlson Telephone Manufacturing Company marked for identification as Defendants' Exhibit D-70; statement showing a patent acquired from the Kellogg Switchboard and Supply Company marked for identification as Defendants' Exhibit D-71. These documents were furnished [fol. 6490] the defendants by the plaintiff, and it was agreed that they were authentic.)

We charged our entire development expense as a current expense. I do not know what the practice is of all other manufacturers.

(Statement showing the description of Western Electric costs marked for identification as Defendants' Exhibit D-72; statement showing investment in Products Company of the Western Electric marked for identification as Defendants' Exhibit D-73; statement showing summary of results for years 1927 to 1930, inclusive, marked for identification as Defendants' Exhibit D-74; statement headed "Electrical Research Products, Inc., Analysis of principal items appearing on Products Company Report No. 1 for years 1927 to 1930, inclusive," was marked for identification as Defendants' Exhibit D-75; sheet headed "Controlling interest of American Telephone and Telegraph Company in Western Electric Company" was marked for identification as Defendants' Exhibit D-76; statement headed "Western Electric Company, Inc., Analysis of capital stock structure since commencement of business to December 31, 1930," was marked for identification as Defendants' Exhibit D-77; statement "1925 Cost of Sales"

was marked for identification as Defendants' Exhibit D-78, and "1930 Cost of Sales" as Defendants' Exhibit D-79.)

. . . . . .

[fol. 6491] ALLAN B. CRUNDEN, recalled as a witness on behalf of the plaintiff, having been previously duly sworn, further testified as follows:

Direct examination.

By Mr. Blackman:

March 22, 1932.

I am the same Allan B. Crunden who has testified previously in this case.

The chart showing the extent and employment of Bell System assets was prepared under my direction and supervision.

(Which said chart was marked for identification as Plaintiff's Exhibit A-99.)

The figures adjacent to the squares on this chart came, in the first instance, from the records of the Company, kept in the regular course of its business. For convenience, I have taken the figures showing the assets of the associated companies from the annual publication called "Bell Telephone Securities Manual," which was marked for identification by the defendants as their Deposition Exhibit 111. The Long Lines figures were obtained from the balance sheet of the Long Lines Department of the American Telephone and Telegraph Company, and the figures for the Bell Telephone Laboratories, Bell Telephone Securities Company and the Cuban-American Company were obtained from the balance sheets of the respective corporations as of the date of the chart (December 31, 1929). The same is true of the 195 and 205 Broadway Corporations. The figures for the Western Electric Company and its subsidiaries were taken from the annual reports of those companies, which have been made available to the defendants by Mr. Gregory's organization. The items represented by the black squares at the top of the chart were taken directly from the books of the American Company, and represent certain assets employed by that Company.

The defendants have had access to, or have been fur-
[fol. 6492] nished with all of the papers to which I have referred, with the possible exception of the annual report of the Cuban-American Company, which is one of the small items below the second horizontal line.

The squares in the deeper blue represent the so-called associated operating companies, including the Long Lines Department of the American Company which is generally considered and referred to as one of the associated companies and which, along with the associated companies, receives the license contract service. The shaded or darker portion of the deeper blue squares represents the extent of the interest in the respective companies not owned by the American Telephone and Telegraph Company. In the Pacific System, for illustration, the assets corresponding to the proportionate ownership of the American Company are shown by the top portion of the blue square. The remainder is shown by that portion of the square below, which is ruled and somewhat darker.

The size of the squares are drawn roughly to scale and represents the total assets of the respective companies as shown by the assets side of the balance sheets of those companies. The Southern New England Company, to the extreme left of the sheet, shows that the American Company has a small ownership; the figures for this Company will be found on page 47 of the Bell Telephone Securities Manual to which I referred. The whole company receives the license contract service and not merely the part owned by the American Company.

The Long Lines Department is shown in darker blue, because it receives the license contract service.

The light blue squares (which include some of the companies below the first horizontal line) include the Western Electric Company and certain others, such as the 195 and 205 Broadway Corporations. They are companies engaged wholly or principally in furnishing services helpful to the associated companies.

There are three squares which are not colored. The largest is marked E. R. P. I. (Electrical Research Prod-
[fol. 6493] ucts, Inc.), which is the company engaged in the business connected with the talking moving pictures and what is generally known as "by-products." Just below that there is a small square, also not colored, and entitled

"Other Subsidiaries of the Western Electric Company," which relates to some small interest in securities, realty, and an industrial railroad used by the Western. That leaves only the black squares at the top of the chart, which represent assets employed directly by the American Company.

The chart, taken as a whole, shows that practically the entire property of the American Company, owned by it directly or indirectly, is represented by its interest in the twenty-odd associated companies and in facilities serving those companies.

(Chart marked for identification as Plaintiff's Exhibit A-99 offered and received in evidence.)

The sheets marked for identification as Plaintiff's Exhibit A-100 were prepared under my direction and supervision. They are six sheets, representing a series of ratios obtained by comparing certain Long Lines factors (such as plant, service, employees, expenses, total plant, messages, etc.) with similar factors for the associated companies, including the Long Lines Department and the Bell Telephone Company of Canada.

These sheets correctly show at the bottom the source, or sources, from which the figures were obtained. In some cases similar figures appear on more than one chart, in which case I may have omitted the reference on one chart because it will appear on another. Each of the sources recorded on the sheets is a record kept by the American Company in the regular course of its business, with the exception of the figures pertaining to the Bell Telephone Company of Canada, which are taken from the records prepared by the Bell of Canada in the regular course of its business and transmitted to the American Company currently. The ratios developed on these sheets can be readily and easily checked by taking the figures from the annual reports of the American Telephone and Telegraph Company; the percentages developed from the December [fol. 6494] 31st figures would be almost the same as those developed at the mid-point of the year. The figures on this exhibit represent the mid-point of the year so as to be average figures, and the annual reports give the figures at the end of the year; but it makes very, very little difference. If the figures for the end of the year were taken

from the annual reports, as this is a ratio, there would be a corresponding change on each side.

The sheets marked Plaintiff's Exhibit A-101 for identification are ratios developed by comparing certain factors for the Chicago area of the Illinois Bell Telephone Company (such as stations, plant, expenses, etc.) with similar factors for the total associated operating companies, including the Bell of Canada, but excluding the Long Lines. The procedure in this case is similar to the one that I made on Exhibit A-100, and the references shown at the bottom of the pages correctly state the sources from which the figures came. Each of those sources was a record kept in the regular course of business by either the American Company or the Illinois Bell, with the same exception in the case of the Bell Telephone Company of Canada of which I spoke in connection with Exhibit A-100.

All of the records referred to by me have been available to the defendants. I prepared these ratios at the request of Mr. Gherardi, and furnished them to him when they were prepared. I prepared the chart at the request of Mr. Blackman.

(Cross-examination reserved by agreement.)

[fol. 6495] B. GHERARDI, called as a witness on behalf of the plaintiff, having been first duly sworn, testified as follows:

Direct examination.

By Mr. Blackman:

March 22, 1932.

My name is Bancroft Gherardi. I am Vice President and Chief Engineer of the American Telephone and Telegraph Company. I was appointed Chief Engineer of that company in June, 1919, and was elected Vice President about February, 1920. I have been connected with the American Telephone and Telegraph Company since the summer or fall of 1907.

After graduating from the Polytechnic Institute of Brooklyn with the degree of Bachelor of Science, I went to Cornell University and took the course in mechanical and electrical engineering. I was graduated from Cornell University with a degree of Mechanical Engineer in 1893. After

graduation, I returned for a year's postgraduate work, and received the degree of Master of Mechanical Engineering in 1894.

I started in business in the Engineering Department of the New York Telephone Company, where I assisted others with various classes of work and did various classes of work myself. I became familiar with switchboards, cables, wires, pole lines, and other parts of the telephone plant of the New York Telephone Company. I became Local Fundamental Plan Engineer, and, as such, prepared a new fundamental plan for New York City, working with and receiving assistance from the engineers of the American Bell Telephone Company. In November, 1899, I became Traffic Engineer of the New York Telephone Company, reporting to the Traffic Superintendent, in which position I had charge of the work ordinarily known as traffic engineering.

On January 1, 1901, I resigned from the New York Telephone Company to accept the post of Chief Engineer of the New York and New Jersey Telephone Company, which was [fol. 6496] a sub-licensee of the New York Telephone Company, operating in all of Long Island, including Brooklyn, and all of northern New Jersey. In that position (which I held from January 1, 1901, until March 1, 1906), I was responsible for all the engineering work of that company. In March, 1906, the operating organizations of the New York Telephone Company and the New York and New Jersey Telephone Company were consolidated, and I became the Assistant Chief Engineer of both companies. In that position, I was responsible for the engineering work of both companies, subject to the general direction of the Chief Engineer. (For a period of the time of which I have spoken the corporate name of what is now the New York Telephone Company was the Metropolitan Telephone and Telegraph Company.) In the summer of fall of 1907, I resigned from the New York Telephone Company to accept a position in the Engineering Department of the American Telephone and Telegraph Company.

The carrying out of the duties of those various positions gave me a general familiarity with all parts of the plants of those companies. It gave me a similar familiarity with their operating methods, especially as they concerned engineering. My experience up to the time I went with the American Telephone and Telegraph Company, in 1907,

gave me familiarity with the entire plant and all of the properties (as far as they concerned or touched engineering), the telephone problems and solutions of those problems in the largest unit of the Bell System at that time. The problems of the various associated companies were, generally speaking, somewhat similar, and I became rather familiar with them. I had no special familiarity at that time with the problems of the Long Lines Department of the American Telephone and Telegraph Company.

At the present time, I am the head of the Department of Operation and Engineering of the American Telephone and Telegraph Company, sometimes called the O and E Department. My personal responsibilities are for the correct and proper administration of the department at all times and for seeing that the work is done in a satisfactory and help- [fol. 6497] ful manner. The work of the department consists of advising and assisting the associated companies of the Bell System, including the Long Lines, with reference to engineering and operating problems. The operating problems are broadly covered by the work of the Traffic Department, which has to do with the handling of connections in the central offices and putting the connections through; the Plant Department, which has to do with the construction and maintenance of the plant; and the Commercial Department, which has to do with the sales, the business connections of the company, and all of the dealings with the subscribers. The duties of the O and E Department can be summed up by stating that it teaches the operating companies the best use of the methods and apparatus known to the telephone art.

There are somewhere between 700 and 750 people employed by the O and E Department, who are, generally speaking, operating and engineering men, with, of course, the necessary clerical assistance, such as stenographers, comptometer operators, and people of that kind.

The principal part of the work of my department does not consist of specific jobs for individual companies. It consists of the development of engineering methods; the methods of using Bell System standards; the devising of operating schemes and methods; the analysis of operating results; the making of comparisons between the results obtained in one place and in another; and then, as a result of all that work, the assisting and advising, either in a general

way or specifically, if specific advice is needed, as to the conditions thus developed. Generally speaking, I would say the results of our work are applicable to all of the associated companies. The results of a portion of our work are not applicable to the Long Lines Department.

The results of our studies are communicated to the various companies of the Bell System by bulletins, circular letters, specifications, drawings, drafts of operating instructions, and by conferences and interviews. Sometimes we have conferences at which representatives of the O and E Department and representatives of all the associated com- [fol. 6498] panies and Long Lines come together at one place (which is very often outside of New York). Sometimes we visit the associated companies in the field, and sometimes their people visit us at headquarters.

A few examples of the solutions of telephone problems which our department has made and communicated to the operating companies, and the manner in which they have been communicated, are as follows:

Here are the notes on "Service Order Practice", which is one of our most important routines, controlling the operation having to do with the steps necessary to be taken from the time the prospective subscriber signs a contract for telephone service until that subscriber is connected up, and until the auditors have the proper information for billing him, the switchboard is properly marked, cross-connections have been properly run, and everything else has been done necessary to connect him. This routine was not issued at one time, but is a series of advices in regard to that routine, and is under a continuing state of development. I could not state just what the bulk of this booklet is, but it consists of several hundred pages and contains a number of drawings and tables.

The amount of time elapsing between the time the subscriber asks for service and the time he gets it varies with individual cases. For some time the Bell System has been putting in what is known as the Appointment Call Plan of Installation. Under that plan, a subscriber is asked when he would like to have his telephone installed, and, generally speaking, we are able to install the telephone at that time. If he wishes it done the next day, it is done the next day, or if he wishes it done a week from the date of the application, it is done a week from that date, and if, in an emergency,

he wishes it done in an hour, it is done in an hour. I have not studied this problem from the point of view of just how many things have to be done between the time the subscriber signs the contract and the time he gets the service in order to have him properly recorded and hooked [fol. 6499] up, and all the necessary accounting and engineering done, but I would suppose there would be fifty things to be done.

Another of the examples of the instructions communicated to the operating companies is "Local Operating Practice, Manual Offices." This is similar to the other one, and consists of several hundred pages. Parts of it are issued from time to time, as there is a continuous development of the subject. It describes in detail the methods used in handling telephone calls in local manual offices and the detailed methods of handling the various troubles when any irregularities happen in the handling of calls. While it instructs the various companies in the manner in which we think is the best way to meet these problems, it really goes further than that; it is put in the form of instructions, which are used directly in teaching the operators. Formerly we got out our instructions in more generalized form, requiring further work by the associated companies in order to apply such matters to the direct training of their people. At the suggestion of the associate companies, we modified our method of work so as to put our matter in such form that, if considered satisfactory by them, it might be directly used in the training of their people.

During the course of the year we send out several thousand circular letters, bulletins, drawings, and advices of one kind or another to all of the associate companies, including the Long Lines. In some cases, these booklets are sent out in great numbers; we have had editions of booklets, which, at the request of the associate companies, have run into tens of thousands.

My department has to do with the method of handling telephone calls. In round figures, I should say twenty to twenty-five billion calls are handled annually by the companies of the Bell System. Something on the order of $5,000,000 would be saved to the local companies of the Bell System from a reduction of one second in the time required for the A operator to handle a local call. During the period 1923 to date, new methods of handling calls have been de-

veloped by our department and recommended to the asso-
[fol. 6500] ciate companies, which have had the effect of improving the service and lessening the cost of giving the service, as contrasted with what it would have been had the new methods not been developed and used.

The series of sheets marked for identification as Plaintiff's Exhibit A-102 is what is known as the Organization Diagram of the O and E Department as of April 1, 1930. It is prepared for the purpose of advising all those who work with the O and E Department (that is, the other departments of the American Company, the associate companies, and the Long Lines) as to the division of our work, who handles various classes of work, and who is responsible for the various classes of work in the department. In an organization the size of the Bell System, a great deal of time and motion would be lost if a man did not know whom to go to, to get advice on a particular problem. This diagram is prepared by the Office Manager of the O and E Department, in accordance with instructions requiring its preparation twice a year; it is issued as of April 1 and October 1. Copies are distributed within the department itself, to the other departments of the American Telephone and Telegraph Company, and to the departments with which we work in the associate companies and in the Long Lines. It has been the custom to make up these diagrams and distribute them, certainly since I have been Chief Engineer (1919), and they have been in general use throughout that period and correctly show the kinds and classes of work which each separate group is engaged upon.

The expenditures for the O and E Department for the year 1930 amounted to about $4,500,000. These expenditures have been increasing substantially over the period from 1923 to 1930. There is a monthly record kept of the payroll expenditures and each of the other expenditures which go to make up the total expenditures of the department. Our payroll expense is about three-fourths of the total expenditures of the department. The remaining expenditures are rent, traveling, printing, postage and stationery, telephone and telegraph service, and similar items. This expense is di-
[fol. 6501] vided between the large subdivisions shown on Chart 1 of Exhibit A-102; that is, to the Plant Operation Engineer, the Traffic Engineer, the General Operating Results Engineer, the Office Manager, the Plant Engineer, the Commercial Engineer and to the general administration

item consisting of Mr. Waterson (the Assistant Vice President) and myself, and our respective secretaries.

We do not keep, and have not kept since I have been Chief Engineer, any record showing the time spent, or cost incurred in doing any separate particular piece of work. We do not do that because such a record would not be useful in the administration of the department and would be exceedingly costly to make. So much of our work is rather general in character and applies to all, that such a record would be an allocation rather than a definite assignment of the different parts of the work on the basis of facts. Most of the work is not done at one time for one company and at another time for another company, but nearly every piece of work has a common application to a great many, if not all, of the units of the Bell System.

I am familiar with the extent to which the work of our department applies to the business and properties of the several units of the Bell System, and with the extent to which it is availed of by them. With my knowledge of the work done by my department and of the use thereof made by the several operating units of the Bell System, I can prorate the expense thereof between the associate companies and the Long Lines Department of the American Telephone and Telegraph Company on the basis of the use which is made of the work that we do. I have made such an apportionment, which is shown on the paper marked for identification as Plaintiff's Exhibit A-103.

In this allocation, I have undertaken to deal with every year from 1923 to 1930, inclusive. The problem is to divide the expenses of the O and E Department which are incurred in rendering the license services between the associated companies and the Long Lines according to their use of the services. Some of our work (and the use made of it) has to [fol. 6502] do primarily with the item of plant investment; it has to do with the plant which is in service in the associate companies or in the Long Lines. Another part of our work has to do peculiarly with the employees and the questions concerning employees. Still another portion has to do with items very directly reflected in the expenses of the Long Lines and associated companies. From my knowledge of the work, I have chosen these three items and the ratio of these three items of the Long Lines to the associate com-

panies as a basis of allocation. As will be seen in the last line of the statement for 1930, the Long Lines plant investment was 9 per cent of the total investment of the Long Lines and associate companies, including Canada; in 1923, it was 6 per cent. The Long Lines employees in 1930 were 6.2 per cent of the total employees, and the expenses of the Long Lines for 1930 were 7.6 per cent of the expenses of this total group. I have composited these figures and arrive at a composite index of 7.6 per cent for the year 1930, and, by means of this figure, I have allocated $329,883 to the Long Lines and the remainder, $4,110,685, is to be divided between the associate companies, including the Bell Telephone Company of Canada, but excluding the Long Lines.

The detailed ratios shown in columns 2, 3 and 4, I have obtained from Mr. Crunden. The figure in column 5 is a composite of the figures in columns 2, 3 and 4 and was developed by me. The figures in column 6 were taken from the records of the Engineering Department and represent the expenses of my department.

In my opinion, the method followed in preparing this exhibit gives a fair and reasonable apportionment of the expenses of my department between the Long Lines and associate companies on the basis of use, assuming the correctness of the figures furnished to me by Mr. Crunden.

I have made another apportionment with a different approach. This organization chart is for the same date as the previous one, but has been enlarged photostatically for more convenient reference. It is in all respects identical with the chart which has been marked A-102, except for certain addi- [fol. 6503] tions which have been made in connection with my allocation. These additions, as will be shown on Chart 2, are certain rectangles in various colors, together with a key to the colors in the corner of the chart.

I know the classes of work that the people shown on this chart are and were doing; I could not tell as to each individual man, but I am familiar with the nature of the work of the groups and sub-groups.

There are some sections of the department shown on the organization diagram (which is marked with various colors) whose work was confined solely to problems connected with the operation of the associated companies and had nothing to do with the toll plant or toll services of the Long Lines Department. There was no group nor individual in the department engaged upon work which related solely to the

Long Lines. The groups having nothing to do with the Long Lines are those enclosed in blue rectangles. On the various sheets there is a total representative organization diagram for April 1st. The first group at the top of Chart 2 is a typical one; that is the local traffic engineering section. That section deals with problems concerning the handling of local traffic, and does not deal with the problems concerning the handling of toll traffic. Of course, the Long Lines has no local traffic and no local traffic problems and it makes no use of the work of that group. I have gone through the various sheets of the chart and enclosed in blue rectangles all the people whose work I knew had nothing to do with the Long Lines.

The largest interest of the Long Lines is in the groups enclosed in red rectangles, which are those groups whose attention is given to problems concerning the handling of toll traffic and whose problems do not relate to local traffic. The second group on Chart 2 is an illustration of that type of group. I have gone through the chart and enclosed in red rectangles all of the people engaged in that class of work. That class of work is not confined to the Long Lines, but is common to the toll business of the Bell System. By "toll business," I include all of the toll business of the associate [fol. 6504] companies and all of the Long Lines toll business.

For the year 1930, I have enclosed in blue 32½ per cent of the people, as doing nothing for the Long Lines; this constitutes 33 per cent of the total salaries of all of the people allocated in any one of the three colored rectangles.

For the year 1930, 15.8 per cent of the people in the department are enclosed in red rectangles, and this represents 15.1 *per cent of the salaries of all the people enclosed in the* rectangles.

Those engineers shown in the yellow rectangles are engaged in work which is neither local nor toll, but is of such character that it has to do with both local and toll plant, traffic, or engineering; they constitute 51.7 per cent of the total. For an illustration of the character of the work performed by these people, I will take the Traffic Results Engineer, shown near the bottom of Chart 2. One substantial group of people under him are engaged on employment practices, which have to do with wages, working conditions, vacations, holidays, time off, and many other problems of that kind which are common to all of the operating units of the Bell System.

I have analyzed the work of the second class of people to whom I referred (those enclosed in the red rectangles), in order to see to what extent they were dealing with problems affecting Long Lines and to what extent with problems affecting the associate companies. I am able to allocate the expenses of the groups of our operating and engineering forces enclosed in such red rectangles between the Long Lines and the associate companies on the basis of the use made by those companies of that work. This group has to do solely with toll work. They are not engaged in local work, and I have, therefore, selected certain indices to compare the toll work done by the Long Lines Department with the amount of toll work of the associate companies. These indices are toll plant investment, toll board messages, total toll messages, and toll employees. For the year 1930, the toll plant investment of the Long Lines is 37 per cent of the toll plant investment of the Bell System, as shown by the [fol. 6505] books. The toll board messages are 14 per cent, the total toll messages 5.1 per cent, and the toll employees are 21 per cent.

Having obtained those ratios, in order to obtain an allocation I composited them into a single figure, which, for the year 1930, was 19.3 per cent. In my opinion, the application of that percentage to the expenses of the people enclosed in red fairly allocates their expenses as between Long Lines and associate companies on the basis of use.

That leaves the yellow-enclosed people, who constitute 51.9 per cent of the total group. They are working on problems common to both toll and exchange. I have analyzed the work of that group and am able to allocate the cost of that work between Long Lines and the associate companies on the same general theory that I did the rest.

In this case, as a basis for my final ratio I used plant investment (that is, the total plant investment, both local and toll), relative number of employees, local and toll, and total expenses; from these three figures I have made a composite figure. For 1930, the Long Lines plant investment was 9 per cent of the total Bell System investment; employees were 6.2 per cent of the total employees of the System, including Bell of Canada in all cases; and the expenses of the Long Lines were 7.6 per cent of the total expenses. These composited to 7.6 per cent. In my opinion, that fairly prorates or allocates the expenses of those people shown in yellow between the Long Lines and the associate companies.

Having dealt with the three separate classes, I will illustrate how I arrived at my total allocation by telling what was done for the year 1930 as to the allocation made by people. 32½ per cent of the people were engaged on work for which there was no Long Lines use (those are the ones enclosed in blue); none of those people were allocated to the Long Lines. The next was the toll group, enclosed in red, which constituted 15.8 per cent of the people enclosed within any of the rectangles, and I applied the composite percentage of 19.3 per cent to the 15.8 per cent, making 3 per cent of the total department to be allocated to the Long Lines. I next took the 51.7 per cent of the people who were engaged [fol. 6506] on both local and toll work, and, by the use of my composite, I found 3.9 per cent of the total department should be allocated to Long Lines. This, added to the 3 per cent found before, gives 6.9 per cent as the total allocation (by people) to the Long Lines.

There are in the organization sheets certain people not enclosed in lines. They are in the Clerical Department (under the Office Manager), the heads of the divisions, the Assistant Vice President (Mr. Waterson), and myself. They are overhead and clerical assistants, and I allocated them in proportion to the allocation of the other people.

These clerical forces are called upon from time to time by each of the various groups of engineers which I have allocated, and I merely prorated them on the same basis as I prorated the engineers who call upon them for assistance. In my opinion, this is a fair and reasonable way in which to allocate that work.

The top line engineers generally supervise and direct the work of the people under them and are responsible for the results obtained by that whole group. I have prorated each of them on the basis of the work which he was doing with respect to the people under him. In my opinion, that is a fair way to prorate that part of the expenses of my department.

I have made a similar allocation for the year 1923. The second part of Exhibit A-104 is the organization diagram of the O and E Department as of April 1, 1923. I have examined and analyzed that organization diagram to determine what part, if any, of the forces shown thereon works solely on problems affecting the local companies, and what part works solely on toll problems, and what part works on both toll and local problems. I proceeded in the

same way in regard to this 1923 chart as I did in regard to the 1930 diagram, which I have just explained. In the allocation of people for the year 1923, I found that the percentage of people on work of which the Long Lines made no use (those enclosed in blue rectangles) was 44.2 per cent of [fol. 6507] the total people. The people in the group engaged on toll work only, of which the Long Lines makes relatively more use, was 12.1 per cent. The percentage of the people engaged in work which has application to both local and toll (those enclosed in the yellow lines) was 43.7 per cent of the total people enclosed in the rectangles.

The people enclosed in the blue are those who are engaged on work of which no use is made by the Long Lines. I have allocated no part of that group to the Long Lines Department. The people enclosed in red are those engaged in working on toll, but not on local promlems; these I allocated according to certain ratios, arrived at in the same way as I arrived at the ratios for 1930, that is to say, the figures for toll plant investment, toll board messages, total toll messages, and toll employees; the figures, of course, are different, because the figures are for the facts of 1923. The ratios are corresponding ratios for the facts as they were in 1923. With regard to those working jointly on local and toll problems, I took the same four ratios with the facts as of 1923 (that is, the ratio of plant investment, employees and expenses), and arrived at a composite ratio as I did in the case of the year 1930.

4.1 per cent of the department in the year 1923 is allocated to the Long Lines on the basis of the number of people. We got a lower figure for 1923 than we did for 1930, because there was relatively less toll work being done in the department in 1923 than there was in 1930, and because the Long Lines was relatively a smaller proportion of the total system in 1923 than it was in 1930. It has grown relatively faster than the local business.

For both 1923 and 1930 I took the salaries which the people received and compared those salaries with the total salaries of the groups treated, and determined the percentages on the basis of pay.

The document identified as Plaintiff's Exhibit A-105 shows the allocation of the O and E Department expenses to the Long Lines on the one hand and to the associate companies (including the Bell Telephone of Canada) on the other hand, on the basis of salaries for the years 1923 and 1930.

[fol. 6508] It also shows an allocation on the basis of numbers of people for every year from 1923 to 1930, inclusive. So two years are allocated by both methods and the intervening years are allocated by using the numbers of people only.

This exhibit (A-105) is divided into two tables. The first column in the top table shows the years 1923 and 1930. The second column shows the percentage of our salary expense for the group of people enclosed in blue, that is, where there is no Long Lines use; these figures were developed in the manner I have already described, and on the basis of the salaries of the people in the different groups. The third column gives the percentages of the salary expense of the people enclosed in red rectangles. In the next column, the zeros indicate that there is no portion of the salaries of this group allocated to Long Lines, because there is no Long Lines usage in the group. The fourth column gives the percentages of the salary expense of those people enclosed in red rectangles, and the fifth, sixth, seventh and eighth columns give indices used in the allocation and are, respectively, the toll plant investment, the toll board messages, the total toll messages and the toll employees; these are the ratios that I have already described. The ninth column is the composite of columns five, six, seven and eight, and is obtained by taking an arithmetical mean of the figures in those columns. The figures in the tenth column are the result of multiplying the percentage of the employees in the group by the composite percentage arrived at in column nine, and is the per cent of the total expense that is applicable to Long Lines because of the work of the people enclosed in red.

The next group deals with the people who are engaged in work that has to do with both exchange and toll. In the first column under that subdivision is given the per cent of the salary expense of this group to the total salary expense of all those enclosed in any one of the three colored rectangles. The next three columns give the ratios which I have used and which I have already explained. The next column gives the composite of those three ratios, which is an arithmetical mean. The next column shows the percentage [fol. 6509] of the total department chargeable against Long Lines for those people who are in this group.

The last column shows the sum of the allocations of the

red and yellow people, and is 4.2 for the year 1923 and 6.8 for the year 1930.

In the lower chart for the years 1923 and 1930, I have done exactly the same thing that I have already described for salaries, except that the allocation in this lower chart has been made on the basis of the number of people enclosed in rectangles instead of on the basis of the salaries paid those people. For the years 1924 to 1929, inclusive, I have done exactly the same thing as to the allocation by numbers of people. That is, I have taken the organization chart for each of those years and marked the people off in blue, red and yellow, as I have already described, and then determined, by the kinds of ratios I have refered to, the allocation of each of these groups. I have not done that on the basis of the pay of those people for the years 1924 to 1929, inclusive. That would be an exceedingly burdensome computation; it involves going back to the payroll records, and for each diagram dealt with, taking many hundred individual entries. I did it both on the basis of the salaries and on the basis of people for the years 1923 and 1930 and found the results were almost identical, and, therefore, I did not go through the exceedingly laborious computations involved in doing that for each of the intermediate years. For instance, the second column shows that percentage for the year 1923 was 43.5 per cent on the basis of allocation by salaries, and 44.2 per cent on the basis of allocation by people, and the last column shows that the total allocations to Long Lines were 4.2 per cent on the money basis and 4.1 per cent on the basis of the number of people. For 1930, the allocations were 6.8 per cent on the basis of money and 6.9 per cent on the basis of the number of people. In my opinion, the reason for that close agreement was that, generally speaking, the salaries will average out and give the same result as the numbers of people; while they are men of somewhat different detailed experience, they are men of [fol. 6510] the same general period of experience, the same kind of engineers, the same kind of operating men, and all getting about the same salaries. We make no difference in the pay of the people who are working on toll from the pay of the people who are working on local problems. This was true throughout the whole period from 1923 to 1930.

I developed the people ratio and, based on the facts developed in 1923 and 1930, assumed that the money ratio would be the same, or so nearly similar that it would

produce no significant difference. So I have prorated the money on the basis and on the several bases shown on the table at the bottom of Exhibit A-105.

In my opinion, the figures developed in the last column to the right on Exhibit A-105 fairly set forth the full percentages of the entire expense of my department which should be allocated to the Long Lines Department in each of the years 1923 to 1930, inclusive, upon the basis of the use made of the work of that department for which those expenses were incurred.

It seems to me that there is little or no opportunity for difference in judgment or opinion concerning the allocation of the people (or their expenses) shown enclosed in the blue rectangles on the 1923 organization chart. That, I should say, was a question of fact. I know of my own knowledge the classes of work done by those people, and I know that it has no relation to the plant, people, or problems of the Long Lines, although there is a microscopical and exceedingly minute part of such work that might be questioned; a part so small that it could not be allocated. I have in mind this: the Long Lines has a test station, and from that test station is run a pair of wires to the desk of the manager in charge of that station, on the end of which is an ordinary telephone instrument. It might be argued that that is a local line. There are, perhaps, a few hundred or a few thousand of such cases in the Long Lines, as compared to fifteen million regular stations in the Bell System. It might be argued that one one-hundredth or [fol. 6511] one one-thousandth of one per cent of this group should be charged to the Long Lines. I merely mention that in the interests of technical accuracy, but I believe that my first statement, that there is no opportunity for difference of judgment or difference of opinion as to the people enclosed in the blue rectangles, is, as a practical matter, entirely accurate.

I do not think that any reasonable treatment of those people enclosed in the red rectangles could make a substantial change in the allocation which we are discussing. They are a relatively small portion of the total of the department, and the character of the Long Lines business and the Long Lines work is so related to the character of the associate companies toll business and the associate companies work that I do not feel there is opportunity for a

question that would substantially modify the total allocation made. The people in this group constituted 12.1 per cent of the total in 1923 (which was the lowest percentage in this period) and increased to 15.8 per cent of the total in 1930. There is no room for doubt as to the figure of 12.1 per cent for the year 1923; that is definite, because I counted the people and I knew what they were doing.

I have applied to that percentage of people a ratio, which, if increased by 10 per cent thereof, might change the final figure of 4.1 to 4.2 per cent or 4.3 per cent; that would be the maximum effect of that change. I cannot conceive of the use of any reasonable factors in addition to those that I have used, or in place of those that I have used, that would make a variation in the allocation figure of as much as 10 per cent.

There would be very small room for change in the group of people enclosed in the yellow rectangles and the expenses represented by them. That is overall work and there is nothing peculiar at all about it. It is work that applies both to toll and local plant, to toll and local people, to toll and local expenses, and toll and local whatever the problem may be. There is so much more local plant, so many more local people, and so much more local expenses, that obviously the percentage applicable to toll is rela- [fol. 6512] tively small; and then the Long Lines is by no means all of the toll. I got a composite figure for this group of 5.1 per cent for 1923. The highest ratio used in arriving at that composite for 1923 was 6 per cent, representing plant investment. I know of no higher ratio for which there would be any logical support for use in developing the composite. If, instead of using the several ratios that were lower than 6 per cent, I had used the 6 per cent alone, the effect on the final figure might have been to raise it from 4.1 per cent to 4.2 per cent.

If I were questioned concerning the similar allocation for 1930, my answers would differ only as to the detailed figures appropriate to that particular year. There would, in each case, be a similar definite limit of the extent of possible error; by "possible error", I mean, of course, reasonable error.

In addition to the methods which I have already explained, I made a still further allocation upon a third basis, which is shown on the papers marked Plaintiff's Exhibit A-106 for identification. In this allocation, I took each group in the

department organization (and sub-groups within that group if they were engaged in work which should be differently allocated), and so finally divided the people who can be allocated at all (the same people I have already been talking about in allocating) into a large number of small groups, and gave specific consideration to each small group. Sometimes I have broken down to the last unit, and the last man. By that method, I developed, I think, 55 separate groups, and, as this was an allocation on the basis of salaries, obtained the salaries paid to the people in each of these small units. We allocated the people above the separate groups according to the composite ratio of the group itself, and distributed the clerical and overhead expenses between these different groups.

In effect, I did 55 times as much allocation as I did in connection with my first allocation, and made 55 allocations instead of the 3 allocations that I made in the second method.

For the purposes of illustrating this third method of [fol. 6513] allocation, I will take Chart 2, for April 1, 1930. The second section of this chart shows the Toll Traffic Engineer. Some part of his work applies to all classes of toll traffic, and there I have used as a ratio the total toll messages, because the work applies to all toll traffic. Certain other portions of his work apply to toll boards only, and for that I have used the ratio of Long Lines toll messages to total toll messages. Another illustration is on Chart 5 for April 1, 1930. Here the first section shown is the Station Engineer and his group of people. They deal solely with subscribers' sub-station equipment, and for that I have taken a zero allocation of Long Lines. The next group of three men deals with building plans, and for that group I have taken 2 per cent, which is the ratio of the building investment of the Long Lines to the total building investment of the Bell System (including the Bell Telephone of Canada).

What I have done in this Exhibit A-106 may be summarized by saying that I have applied to each of the 55 or more groups the ratios which, in my opinion, are applicable to determine the prorating of the work of that particular group between the Long Lines and the associate companies on the basis of the use of that particular work.

The money figures, the ratios, and all other matters necessary to understand my method of procedure in connection

with this allocation are shown on Exhibit A-106, unless it is desired to see the detailed computation.

I have used a great many more ratios than those that have already been referred to. Some of these ratios I got from Mr. Crunden and a few I made for myself. The ratios which I got from Mr. Crunden are easily identified by comparing his sheets with those that I used.

On Chart 5 as of April 1, 1930, is shown, at the lower right-hand corner of the chart, Note 1. That Note 1 comes down from a small section near the middle of the page, and is a group of people whose work is entitled on the organization diagram "High Frequency System". Those people are dealing with four classes of work; they are deal-[fol. 6514] ing with carrier systems, and the Long Lines has 60 per cent of the channel mileage of the carrier systems in the Bell System; they are dealing with program transmission circuits, and the Long Lines has 40 per cent of such circuits; they do some work in connection with radio systems, and, during the year 1930, the radio systems existing and being engineered were three-fourths Long Lines and one-fourth associate companies; they deal with public address systems, and public address system service is rendered entirely to associate companies. I have composited those activities on the basis of 50 per cent to the Long Lines. In that particular group, Long Lines is getting an allocation of 50 per cent against a general allocation in the end of about 6 per cent.

Each of the ratios that I used that is not contained on the sheets Mr. Crunden furnished me was one that I developed myself from the records or information that we had in my department. These records or information were obtained in the regular course of business and we are dealing with them continually.

I made a similar detailed allocation of the people shown on the chart for the year 1923, as well as 1930. I made that allocation in the same way.

I have prepared a table which shows by each of the three methods which I have described the percentage of the expenses remaining to be allocated between the Chicago area of the Illinois Bell and the remaining areas of all the associate companies. That is the sheet identified as Plaintiff's Exhibit A-107. It shows the percentage remaining after deducting from the total 100 per cent the allocation made to the Long Lines in the three allocations which I have de-

scribed, and it shows that the three methods give very closely comparable results. This close agreement between the results obtained by the three methods indicates to me the validity of the methods used. In the first place, I made a general allocation on the basis of general use; I then broke the people down into different classes of work (of toll, of local, and of local and toll jointly), and appl[illegible] ratios to them; I then broke it down into 55 different groups and [fol. 6515] chose appropriate ratios for each of th[illegible]m. By these three methods, I obtained substantially similar results.

The separations and allocations which I have described heretofore are directed toward allocating to the Long Lines Department a fair share of the total expenses of the O and E Department. I first eliminated the expense properly prorated to the Long Lines before prorating the expenses of the O and E Department between the Chicago area of the Illinois Bell and the remaining areas of the associate companies, because the Long Lines being exclusively a toll operating company made certain ratios and methods appropriate to that allocation which were not available for the other allocations. There were also certain items which can be used in making allocations between the various associate companies that were not available in the case of the Long Lines. When I said "not available", I meant they were non-existent. For instance, an important element in allocating between various associated companies might be stations, or that might be considered as a significant item, but no allocation between associate companies and Long Lines can be made on the basis of stations, because the Long Lines have no stations.

After having made the allocation of expenses between the Long Lines and the associate companies and having taken out what I developed as the fair share to be allocated to the Long Lines Department, I made an allocation of the expenses remaining between the Chicago area of the Illinois Bell and the remaining areas of all the associate companies. The paper identified as Plaintiff's Exhibit A-108 is the sheet on which I have developed that allocation. In making that allocation, I have taken for each year from 1923 to 1930, inclusive, certain ratios as between the various associate companies as a whole and the Chicago area which are significant and have important relations to the work which we are doing and to the use of such work. The ratios which I have taken are stations, plant investment, employees and

expenses. These I have composited by taking their arithmetical mean and so arrived at a single percentage for each [fol. 6516] year, which I have applied to the total expenses of the O and E Department in the license services to the associate companies (including the Bell Telephone of Canada), but after deducting the allocation to the Long Lines. By that process, I arrived at the last column on the table, which shows the expenses of the O and E Department which I have allocated to the Chicago area. I have done that for each of the years 1923 to 1930, inclusive.

There might be one or two very minor groups in the Department engaged upon problems which do not have any application to the Chicago area of the Illinois Bell Telephone Company, but, broadly speaking, every group in the Department is engaged upon problems having an application to the Chicago area of the Illinois Bell.

In my opinion, the use of the percentages shown on Exhibit A-108 as I have used them will result in allocating to the Chicago area of the Illinois Bell Telephone Company no more than its fair share of the expenses of my department for 1930, on the basis of the proportionate use by that area of the total work performed by my department for which such expenses were incurred. The same is true with regard to each of the other years 1923 to 1929, inclusive.

I have not dealt with 1931, as I did not have the complete figures.

For separating out the Long Lines I selected the general ratio, that is the one I first presented in my testimony. I selected that because I had to select either the first or the second, because the third one is only done for two years and was done as a check to see whether carrying the question down into the most minute detail would result in any substantial change in the allocations. As a matter of fact, the differences are relatively minor between the two allocations which were available for each of the years in question, and, generally speaking, the first allocation allocated more to the Long Lines and left less to the associate companies than did the second allocation.

(Plaintiff offered in evidence exhibits marked for identification as Plaintiff's Exhibits A-102 to A-108, both inclu- [fol. 6517] sive. Objections were reserved by the defendants until after the cross-examination.)

(Plaintiff offered in evidence exhibits marked for iden-

tification as Plaintiff's Exhibits A-99 to A-101, both inclusive. Objections were reserved until after the cross-examination of Mr. Crunden.)

Cross-examination.

By Mr. Haight:

March 23, 1932.

In the compilation of Plaintiff's Exhibits A-102 to A-108, inclusive, I first determined personally the methods and coefficients which were to be used; I then determined the methods of computation which were to be used, and had the computations and the detail work done by the people in my department under my direction. I do not know the total number of people engaged on this work, but, including the clerical forces, I presume that at one time or another there were perhaps eight or ten people. The work was started last November and was finished just a few days ago, because just as soon as I saw that I was not going to testify last November, I turned to other matters.

In some cases, it would require turning to the original records to check these exhibits. I should not say, however, that it would require a force the same size as that employed in compiling them, to check them. To determine the correctness of each of the factors used and of each of the coefficients used, and to examine the methods and to determine the correctness of the data from the original entries, would require considerable time. I should say that a couple of men in a day could do what I would call a spot check; but if every item and every computation is to be checked, and the principal work would be in checking the original data, it would require considerably more time than that.

The original records from which the data for these exhibits were taken are in New York. I do not remember [fol. 6518] any case where summaries were used in the compilation of these exhibits instead of original data, and I do not think there are any such cases.

The Exhibits A-102 to A-108 were not used in the Ohio Telephone Rate Case.

I have preserved the working papers employed in the compilation of these exhibits. Those working papers are in the court room, and are available for inspection by the defendants if they wish to do so.

(Counsel for plaintiff agreed that these documents would

be retained for inspection by the defendants after the close of Mr. Gherardi's testimony.)

In my testimony and in the exhibits, the references in certain instances to long distance property or investment refer to the investment shown on the books of the Long Lines Department.

Occasionally, in connection with manual equipment, there may be direct trunks from the private branch exchange of the subscriber to the toll board, but that is not the normal arrangement in connection with giving telephone service. I could not say whether there are any such arrangements in Chicago or not. There may be toll terminals in which the subscribers' lines go directly to the toll board in connection with dial equipment in Chicago, and also in connection with dial equipment in Chicago there may be direct trunks from private branch exchanges to the toll board, but I do not know definitely. With reference to dial equipment, I do not know of any direct lines to the toll board in Chicago that cut out the toll office operator so the subscriber in that way directly uses the long distance service.

Some of these situations at least exist in some places in the Bell System.

The toll engineers of the Department of Operation and Engineering get their information with respect to the methods, conditions, operations and facilities of the local plant largely from contacts with the field people in the various companies. In some cases, they get that information from their general and prior experience, and, in some cases, [fol. 6519] from other people in the department. Our department is so organized that those engineers can get information from the other engineers who pay more particular attention to the local exchange plant and its problems; they can also get information from the circular letters, specifications and drawings which are prepared by the local engineers.

From an engineering and operating standpoint, the problems of design, maintenance and operation of the local exchange plant are, in many respects, similar to those in the toll plants, and, in some respects, they are different. The local problem of interconnecting subscribers consists of the connecting together of subscribers with a single switchboard, or with a relatively small number of switchboards (depending upon the size of the city, the switchboards may

run to 30, 40, 50 or 100), and is one of handling very large numbers of calls between those switchboards. The toll switching problem, on the other hand, is one of handling a relatively very much smaller number of calls, scattered over very much larger areas and with a very much smaller number of calls to any given destination. There are also differences in equipment which make the problems different.

"Q. Speaking of your Department of Operation and Engineering, is it true that it furnishes the licensee companies advice and assistance in connection with general construction problems, and co-ordinates those programs and the manufacturing facilities of the Western Electric Company?"

No, sir. That is not my understanding of what we are doing.

We occasionally do a little work which might be characterized as co-ordination of the programs of the various associated companies in the Bell System with the manufacturing facilities of the Western Electric Company. To illustrate that, there are times when the associated companies, due to very rapid growth, are greatly in need of certain types of apparatus, or cable, or some other piece of property, so that it is not possible at the particular time for all the associated companies to get just what each one of them would like to have. We undertake to assist the [fol. 6520] associated companies in that matter, so that each will get what it wants when it needs it as near as possible.

My department gives advice in connection with provisional estimates in the Bell System. We have made suggestions to the various associate companies as to the most convenient method of approaching the estimate of their departmental expense. In many cases, we have also given suggestions as to the methods of preparing a construction program, so as to short-cut much of the detail work that is sometimes done in connection with such planning ahead of construction. Sometimes in connection with that we have sent out advices by way of letters, in the same general manner that I illustrated in connection with some other features on my direct testimony. Broadly speaking, we give our advice and assistance in much the same manner that we do in the things I illustrated on direct.

After the provisional estimates come from the various licensee companies in the System, we look over each estimate, study the construction program and the departmental expenses provided in the estimate, and if, in any respect, it seems to us that a better or different provision of plant or expenditure of more or less money is desirable, we so advise the associate companies. The provisional estimates are available in our department for any one of the responsible people in our department who may find them of assistance in their work.

Redirect examination.

By Mr. Blackman:

The choice of the ratios which I used in my allocation (that is, the three ratios on the general basis that I applied to the blue, red and yellow, including the allocation both on the expense basis and on the basis of the number of people, and the ratios in the 55 different classes treated by me in my detailed allocation) came from my judgment. The figures themselves came from records. The figures, with the exception of two or three, were furnished to me by Mr. Crunden, and appear in his exhibits. The money ex- [fol. 6521] pended in my department came from the official records of the department. With one exception, a general examination of this matter, outside of an examination into my judgment, would take a very short time; that one exception would be where individual salaries were used as a basis of allocation, in which cases it would be necessary to go to the original payroll records of each individual in order to check the work, and that is the most laborious feature in the whole allocation. That was the feature, however, that I found agreed most exactly with the allocation on the basis of people. A check of the allocation on the basis of people could be done in a very few hours.

Some of the similarities between Long Lines operation and the operation of the associate companies are: both, in many cases, employ operators; they employ wires and switchboards; they employ linemen and use poles, lead covered cable and copper wire. The similarities are very numerous. The method of employing employees, for instance, is the same, as is the method of training them, except as to the exact detail of what they are taught; the general methods, however, are the same. The extent of

training is the same, and the pay is the same in the same place. That is, in Chicago the people who are handling the Long Lines business get the same pay as the people who are handling the local business; they get the same pay when they are employed, and their schedule of progression is at the same rate. The people who are maintaining the plant are maintaining the same general kind of plant with, naturally, some variations, because the plant is not identical, although it has many similar elements. There is no difference between the Long Lines' pole lines and the pole lines of the associate companies. So far as lead covered aerial cable is concerned, the conductors are not necessarily identical, but the cable itself is the same general cable, and the sheath maintenance is the same. The underground cables of the local companies sometimes run in vitrified clay ducts (that is the general type), and sometimes in other types of ducts. The Long Lines' under-[fol. 6522] ground cables run in the same kinds of ducts. The general maintenance of that class of plant is the same.

The switchboards that handle the long distance calls of the Long Lines are not identical with the switchboards that handle the toll calls of the associate companies, but they consist of many of the same elements, and, generally, are a similar class of apparatus. The toll switchboards are similar in many respects to the local manual switchboards; that is, they consist of jacks, relays, plugs and cords.

(Plaintiff reoffered in evidence Plaintiff's Exhibits A-102 to A-108, inclusive, which were admitted.)

ALLAN B. CRUNDEN, recalled as a witness on behalf of the plaintiff, having been previously duly sworn, further testified as follows:

Cross-examination.

By Mr. Goldstein:

.March 23, 1932.

The Bell Telephone Securities Manual procured the information shown on Exhibit A-99 from records in the possession of the American Telephone and Telegraph Company. Those records are copies of the annual reports of the various companies referred to in the exhibits, and re-

ports coming to the American Telephone and Telegraph Company in the ordinary course of business. Those latter reports are what are known as the M. R. reports (Monthly Reports). Both the M. R. reports and the reports to the stockholders of the respective companies would show the same figures. The M. R. reports are sent in to the American Telephone and Telegraph Company in the regular course of business.

I was present a part of the time in the assembly room at the time of the taking of the depositions in New York; I was in and out. I may have been present when a request was made for the M. R. reports to be produced, but I do not recall at this time. I do know that they were refused to the defendants. I am talking of the reports of the individual companies. M. R. Report No. 2, in particu-
[fol. 6523] lar, shows the assets, liabilities, and income statements of the individual companies.

I compiled the figures shown on Exhibit A-100 about a month ago. The figures on this exhibit were not, to my knowledge, used in the Ohio Telephone Rate Case. The percentages shown on this exhibit first appeared in the instant case in these exhibits. The other data is taken from various sources that have been previously made available to the defendants. I started to work on Exhibit A-100 about a month ago. They are comparatively simple calculations, and were made by someone working under my direction; I should estimate that the whole business could be done in a day, and checked in one-eighth part of that time.

C. R. 64-A is a summary compiled from Monthly Report 6. Monthly Report 6 is a report sent by each of the associated companies to the American Telephone and Telegraph Company in the regular course of business. Monthly Report 6 was refused to the defendants in these depositions, but C. R. 64-A was not refused. C. R. 64-A was compiled from M. R. 6 from each of the associated companies, and M. R. 6 was withheld from the defendants. Monthly Report 6 for the Long Lines Department was not withheld from the defendants.

M. R. 23 is one of the reports of the associated companies that was refused to the defendants. It is a monthly report sent by each of the associated companies (including the Bell of Canada) to the American Telephone and

Telegraph Company. C. R. 89 is a summary report compiled by the American Telephone and Telegraph Company from Monthly Report 23, which is a monthly report sent in by the associated companies.

C. R. 51-A is a summary compiled from the M. R. reports of each of the associated companies. The M. R. reports used as a basis for 51-A are M. R. Reports Nos. 1 and 2.

Exhibit A-101 is a comparison of the Chicago area with the associated companies. The figures on this exhibit were compiled about a couple of weeks ago and were not used in [fol. 6524] the Ohio case. C. R. 51-A and the M. R. reports referred to in connection with Exhibit A-101 are from the same sources as those referred to in connection with Exhibit A-100; exactly the same principle is involved here.

Exhibit A-99 has been in process of compilation for some months; I could not particularize. It was not furnished in the Ohio case.

The books and records underlying Exhibits A-100 and A-101 are in New York. Of course, the books of the individual companies are in the various states in which they operate, but the records which I used as the source of information for these exhibits are all in New York.

"Mr. Blackman: I offer in evidence now, if your Honor please, Exhibits A-99, A-100, and A-101, both inclusive.

"Mr. Goldstein: I object on the ground that the original sources from which the data was taken have been refused to us, and not made accessible, and there is no way we can check them.

"Judge Wilkerson: What is your reply to that objection?

"Mr. Blackman: This, your Honor: As to Exhibit A-99, the data there, according to the testimony of the witness, came from, or he took from this pamphlet of the Bell Securities Company, which the defendants offered in the New York case. They themselves offered that. They have all of the figures in front of them——

"Judge Wilkerson: The defendants?

"Mr. Blackman: The defendants, yes sir. They came to New York to take depositions and examined a great number of witnesses, and that exhibit is Exhibit 111, attached to their deposition filed in this court. It has not been read in yet, but it seems to me that that is a very

technical position for them to take, when they have the figures that we are dealing with.

"Mr. Blackman: In their depositions they called for a great many things which we had not submitted to them before. We had submitted thousands of things before that, but there were perhaps a few score that they did not get. In those depositions they asked for them, and in the course [fol. 6525] of those depositions they identified this pamphlet of the Bell Securities Company, as Exhibit 111.

"Judge Wilkerson: They have not offered it here yet.

"Mr. Blackman: No, sir, not yet. But I say, I call your Honor's attention to that, that it has not been offered yet, but it seems to me that it is a good deal of a technicality, to object that there is no way of their checking this thing, when it is in the very document that they themselves have had introduced and attached to the depositions. Now, that is as to Exhibit A-99. This is the whole thing, your Honor —and I will have to give my friend Mr. Goldstein credit for a very adroit maneuver. We had this thing out last fall. These various reports of all of the different companies of the Bell System were asked for by the defendants. We declined. The matter came before this court, and this court decided that they were not entitled to them. It was a perfectly obvious fishing excursion, to get——

"Judge Wilkerson: Well, is not what you are offering now a document which purports to be a tabulation of certain other documents which they have not been permitted to see?

"Mr. Blackman: Well, sir, this is the point: we have not permitted them to see the individual reports of the New England Company, the Southwestern Bell, and this, that and the other company, because there are certain things in those reports that we think they have no right to see, that have no bearing on this case, and we do not care to have our business spread broadcast any more than we have to.

"Judge Wilkerson: Well, if that is the situation, why do you not have to forego, then, the right to put in this tabulation, if you are not willing to let them see the reports?

"Mr. Blackman: Well, sir, I was just coming to that. From these individual reports, that is, the individual reports from the companies, which are not made up by the

American Company at all, but are made up by the New England Company, and the other companies, in the ordinary course of business, the American Company makes up tabulations for all of the companies. Now those tabulations are what we are using. Those are the only figures [fol. 6526] we are using, and all of those reports have been given freely to them. They have been given the individual figures for the Long Lines. We are using them. They have been given the System figures, and we are using them; and those figures have been freely offered to them. Now they say, 'Because you got those System figures from the individual reports of the New England Company, the Southern New England Company, the New York Company, and the 23 other companies, we object to this, because you have not given us those things.' Now we do not make this up at all—and by 'we' I mean the Illinois Bell, or the American Telephone and Telegraph Company. That is information that comes to us from the outside. So far as our reports that we make up are concerned, we have given them to them, and that is all that we are using. We are using nothing here, about these individual companies. We are using here only the System as a whole, as compared to the Long Lines, that is all. We have used those ratios. Now, it is a perfectly simple thing; there cannot be any doubt about the figures. Of course, that does not perhaps meet the legal situation, but I cannot see any doubt about the figures. These ratios can be checked by them; they have all of the information with which to do it; they have been published broadcast in dozens of publications, and there is no possible doubt about them. The only thing is that my friend, Mr. Goldstein, is clever enough to take advantage of this, to try and extract from us these individual reports, which we have declined to let him have.

"Now, I do not think that there is a good legal foundation for it.

"Judge Wilkerson: Well, I am not so much concerned about the foundation for his attempted extraction of the information as I am about the legal foundation for admitting these documents in evidence——

"Mr. Blackman: Yes.

"Judge Wilkerson: —when the basic figures are not here, now.

"Mr. Blackman: Well, but the basic figures are, your Honor, in my opinion. These figures came from our reports——

[fol. 6527] "Judge Wilkerson: Requiring you to produce those reports is one question.

"Mr. Blackman: Yes?

"Judge Wilkerson: And admitting compilations made directly or indirectly from them, it seems to me, presents a different question.

"Mr. Blackman: Certainly it does, sir. But those reports are only indirectly concerned here, and as I say, those are not our reports. The reports that we make up in the regular course of our business are the reports which we have submitted to them.

"Judge Wilkerson: But your reports deal with the business of these other companies.

"Mr. Blackman: Yes, sir, they do.

"Judge Wilkerson: And your reports are based in turn upon the information which you get from them.

"Mr. Blackman: Yes.

"Judge Wilkerson: Now you say, 'We should not be required to produce those reports because they contain information on a great many subjects with which these defendants have no concern'—'with which they are not concerned.' And we have agreed with you on that.

"Mr. Blackman: Yes, sir.

"Judge Wilkerson: Now, then, you come in here, and you want to use certain ratios with a view to opportioning among these companies certain items of expense, the net result being, you get into the expense, on the expense side of the Illinois Bell, when we come to determine what is to be deducted from gross earnings, you get into that, a figure which is based on these ratios. Now, that is what it ultimately leads to, is it not?

"Mr. Blackman: That is true.

"Judge Wilkerson: That is to say, one of the figures in that column depends upon that ratio for its accuracy, and that ratio is one which is determined from the report of your Company, which in turn is compiled from the reports of these other companies. Now, of course, I understand that.

"The courts are in cases of this kind very liberal in permitting compilations to go in, and in the expedition, or

[fol. 6528] in the interests of saving time, do permit a great many things to go in which, according to the strict rules of documentary proof, would not have been admissable fifty years ago, to say the least.

"Mr. Blackman: Yes, sir.

"Judge Wilkerson: Now, I would have no difficulty about these compilations at all, if the other side had had the opportunity to inspect these figures. I would not require you to bring them all in here, nor would the court permit them to be brought in, when compilations could be made which would answer the purpose.

"Mr. Blackman: I might say this, your Honor: I do not think that there would be the slightest objection to the defendants inspecting those underlying reports, as they call them—although I do not think that they are really that, legally; I do not think that there would be the slightest objection to their inspecting those reports insofar as they relate to the figures which we have used. Now, insofar as they show——

"Judge Wilkerson: Well, that of course goes—that is a rule with which we are familiar, that where you have to go into book accounts, and the book contains matters with which the other parties are not concerned, the courts, of course, will not permit an inspection of all of the books, but only of that portion of them which is pertinent.

"Mr. Blackman: That is our point here, sir.

"Judge Wilkerson: Well, will that satisfy you, if you are allowed to look at the portions of the reports which are pertinent to this matter? Now, of course, back of that—I know exactly what Mr. Haight is going to say. He is going to say that that leaves to the parties in the case a determination of what figures are pertinent.

"Mr. Blackman: No, if your Honor please; it does not in this case, no.

"Judge Wilkerson: But that is the same objection that comes up when we seal all of the pages of a book, except one page; that same question comes up in that case.

"Mr. Blackman: In this case it is a very simple question, your Honor. Those reports show the plant of the [fol. 6529] Company. Now, insofar as they show the plant, plant figures, we will let them see them. Those reports show people; they show these specific things—this witness has said that—and those we will let them see. Now, those

reports contain many other comparisons that have nothing in the world to do with what this witness has testified to. Now, those——

"Judge Wilkerson: I can see how that might be embarrassing—how there might be information there which would be embarrassing to some of those companies.

"Mr. Blackman: Certainly.

"Judge Wilkerson: In their relations with the rate-making bodies——

"Mr. Blackman: Certainly.

"Judge Wilkerson: —of the states in which they are operating.

"Mr. Blackman: Certainly.

"Judge Wilkerson: I can understand that. If there is no such controversy as that existing now, it is a question whether in this lawsuit there should be stirred up a controversy in other states which are not contesting with you now. I understand that phase of it. I suppose that is a good objection.

"Mr. Blackman: Your Honor has put your finger directly on the point.

"Judge Wilkerson: I do not suppose that these gentlemen are interested in stirring up litigation any place else. They are interested in winning their lawsuit here, and if they have the basic figures relating to those things which you have put in, I suppose they will be satisfied.

"Mr. Blackman: I think I may say—although, of course, I cannot speak for the Company; I would have to confer with Mr. Bracelen, but I think we would be willing——

"Judge Wilkerson: Well, are you through with this witness?

"Mr. Blackman: —to bring all of those in——

"Judge Wilkerson: Did you have any further examination?

"Mr. Blackman: No further questions.

[fol. 6530] "Judge Wilkerson: All right.

"Mr. Blackman: I would be willing to say, we would be willing, I think——

"Judge Wilkerson: I think we can dispose of this.

"Mr. Blackman: —to bring all of those papers here.

"Judge Wilkerson: I would like to leave it in such shape, now, that it will work itself out automatically—unless it is brought to the attention of the court in some other way. I

think I will admit the documents in evidence, as I have the other documents, but let the record show, motion to strike, unless and until there has been a compliance with the request of counsel for an inspection of such portions of those underlying reports as are deemed by them material to the ratios which are introduced. Now, try to work that out among yourselves.

"Mr. Blackman: All right, sir, and if we have trouble——

"Judge Wilkerson: And if you cannot work it out, then counsel for the defendants may bring it before the entire court, on the motion to exclude the exhibits. If such motion is not made by them, I shall assume that in some way or other they have satisfied themselves of the substantial accuracy of the ratios shown by the exhibits.

"Mr. Blackman: I would suggest this, that if we cannot agree with the defendants, we might bring them here, and submit the papers to your Honor——

"Judge Wilkerson: I have no doubt——

"Mr. Blackman (continuing): —we have no objection to your Honor seeing them.

"Judge Wilkerson: I have no doubt that you will find some way of working it out among yourselves. I think we understand what it is that Mr. Goldstein wants, and I think we now understand your objection to permitting an inspection of all of those reports. You are all lawyers, and I think you can work it out.

"Mr. Bracelen: I think Mr. Goldstein has understood our objection to giving him those monthly reports. It has been as Mr. Blackman has stated."

[fol. 6531] Richard H. Gregory, recalled as a witness on behalf of the plaintiff, having been previously duly sworn, further testified as follows:

Redirect examination.

By Mr. Thompson:

March 23, 1932.

The Graybar Electric Company on January 1, 1926, took over the business formerly done in the United States by the Supply Department of the Western Electric Company. The Supply Department of the Western Electric Company never did any business with the Bell associated companies

and the Graybar Electric Company has never done any business with the Bell associated companies. So all of the transactions in connection with the Supply Department of the Western Electric Company, its sale to the Graybar Electric Company and the sale of the stock of that company to the Management Corporation of the Graybar Electric Company have no relation whatever to the profits on the Bell business of the Western Electric Company.

During my cross-examination, there was marked for identification Defendants' Exhibits D-53, D-54 and D-55, certain balance sheets and profit and loss statements of the Teletype Corporation, and a statement showing the circumstances of the purchase by the Western Electric Company of the stock of the Teletype Corporation. The balance sheet so identified shows the physical assets of the Teletype Corporation at the end of 1930 were approximately $8,000,000, and the purchase price was $30,000,000. There are no assets of the Teletype Corporation included in the average investment used for the purpose of arriving at a return on Bell business in Plaintiff's Exhibits A-77 and A-78. In the consolidated statement (Exhibit A-84) figures are included for the Teletype Corporation for the period October 1, 1930, through December 31, 1931, and covering the investment of the Western Electric Company in the Teletype Corporation representing the purchase [fol. 6532] price that we paid for that company, after giving due effect to the operations of that company since its purchase.

Exhibit D-54 shows that the Western Electric Company purchased the stock of the Teletype Corporation on a basis that shows earnings of between 12 and 13 per cent on the purchase price; that earning factor was taken into consideration in arriving at the amount paid for its stock.

We have made the investigation with respect to the depreciation practices of the 88 companies listed in the Exhibit A-85 which I was asked to make in my cross-examination. For 82 of the 88 companies there is no reference that I could find to the Federal Income Tax returns with respect to the depreciation rates; in 6 of the companies there is such a reference. The policy as to depreciation is mentioned in specific percentages in 50 companies, in general statements by 10 companies, and 28 companies make no statements at all.

29 companies have rates on buildings less than the Western Electric; 21 have rates on machinery less than the Western Electric; and 5 have rates on service equipment less than the Western Electric. There is one company that has the same rate on buildings; 14 that have the same rate on machinery as the Western Electric; and 3 that have the same rate on service equipment as the Western Electric. There are 8 companies that show varying rates for buildings ranging above and below the Western Electric Company; there are 4 that show that spread above or below on machinery and 1 on service equipment; as to these cases there is no way of telling whether they are above or below the Western Electric Company. There are 4 companies which show a rate higher than the Western Electric on buildings; 3 higher on machinery; and 22 higher on service equipment.

The Air Reduction Company shows a rate on buildings ranging from 2 to 33⅓ per cent; Columbian Carbon Company shows a rate ranging from 5 to 33⅓ per cent; The National Supply Company shows rates ranging from about 3 to 10 per cent; A. O. Smith, 7 per cent; Du Pont, 3 to 6 per cent normal and 3 to 20 per cent special; International Cement, 6¼ to 6½ per cent; United States Gypsum, 4 per [fol. 6533] cent on buildings and equipment; and United States Industrial Alcohol, 2½ to 36 per cent.

In arriving at the 88 companies shown on Exhibit A-85, I started with industrial companies listed in the Standard Statistics Bulletin. There were 579 companies listed in that bulletin. 308 of these companies were excluded because they were not comparable. Some were foreign companies; some were engaged primarily in merchandising, such as Sears-Roebuck and Montgomery-Ward; some were extractive industries; and the steel companies were excluded for the reasons that I gave on my direct examination. This group was excluded because the businesses in which they were engaged were not comparable with the Western Electric Company.

Of the remainder, 110 companies were excluded because of inadequate information, primarily with reference to the treatment of depreciation reserves. Of the number still remaining, 77 were omitted on account of size; that is, their net profits were, in more than one year out of the 5 years, less than a million dollars, and for that reason I did not

believe them fairly comparable with the Western Electric Company on account of their size. This left 84 companies and we added the St. Regis Paper Company, the Torrington Manufacturing Company, the Dennison Manufacturing Company, and A. G. Spaulding; the data concerning all of these 4 companies are contained in either Poor's or Moody's Manual.

We did not deduct from the average investment figures appearing in Exhibits A-77, A-78, A-79 and A-80, the interest-bearing obligations due from the Western Electric Company to the American Telephone and Telegraph Company and to the Trustees under our pension fund, because they represented money invested in the business.

The Western Electric Company makes no guarantee to the Bell associated companies to whom it sells telephone apparatus and lead covered cable against any loss which might be sustained by those companies on account of patent infringement in connection with apparatus sold to them by the Western Electric Company.

[fol. 6534] At the time that the new contract between the Western Electric Company and the Automatic Electric Company was entered into, in 1927, there was a reduction in the price agreed to be paid by the Western Electric Company for the step-by-step equipment to be purchased from Automatic. This was a reduction of approximately two and one-half per cent on the purchase price of all apparatus which we expected to purchase during the contract period. That figure was based upon the estimated purchases of the Western Electric Company during the term of the contract. Later the Western Electric Company obtained additional price reductions from the Automatic Electric Company. In 1929, due to the large volume of business we were placing with the Automatic, arrangements were made whereby the Western Electric Company received an additional price reduction varying according to the quantities which were purchased; it was a quantity discount.

The licenses which we obtained from the Automatic Electric Company to use certain patents owned by it, gave the Western Electric Company the right to manufacture the step-by-step telephone apparatus made by the Automatic. These licenses were acquired by the Western Electric from the Automatic Electric prior to the Western Electric Com-

pany making any contract for the purchase of telephone equipment from the Automatic Electric Company.

I prepared the statement identified as Plaintiff's Exhibit A-109. This exhibit shows the sales of special commercial products by the Western Electric Company for the period 1916 to 1931, inclusive. It shows the various classifications of special commercial products sold by years and divided between Bell and non-Bell business. It shows that the total amount of the special commercial products was 3.4 per cent of all the Western Electric Company manufactures. In the last column it shows that the special commercial products was 32 per cent of the total sales to non-Bell customers during the entire period 1916 to 1931.

Exhibit A-83 shows the annual effect of certain price reductions made by the Western Electric Company in the [fol. 6535] years 1921 to 1930 in its sales of telephone apparatus to the Bell associated companies. These price reductions shown in the exhibit are non-cumulative. I testified that, by reason of these price reductions, the telephone apparatus purchased by the Bell associated companies in 1930, at 1930 prices, represented a saving of $97,000,000 over apparatus purchased at 1921 prices. There was a slight reduction in raw material prices between 1921 and 1930, and there was an increase in wages during the same period. The effect of the wage increase more than offset the reduction in the price of materials, and we can, therefore, fairly ascribe the whole amount of $97,000,000 as due to the improved efficiency of operations of the Western Electric Company during that period.

If, in the preparation of Exhibits A-77 and A-78 (showing the return on investment in Bell business), I had treated the property transferred from the Western Electric Company to the Bell Laboratories as remaining with the Western Electric Company, it would have added approximately $450,000 to the profit on the Bell business in the period, and would have increased the earnings on the Bell business .02 per cent for the period 1916 to 1931 and .03 per cent for the period 1923 to 1931.

I have ascertained the fact as to whether or not the cost to the Western Electric of purchases aggregating $102,000,000 for the period 1921 to 1930 from others of apparatus and equipment designed entirely or in part by Western, but manufactured by others, was included in the cost

of sales apportioned between Bell and non-Bell business in my exhibits. Those costs are included in the cost of sales, but are not included in the cost of sales in allocating the current variation of our shop results.

The sales expense of the Graybar Electric Company for the years 1926, 1927 and 1928 (during which time it was a subsidiary of the Western Electric Company), was 5½ per cent.

I know the profits that have been made by the Western Electric Company and the Electrical Research Products, Inc., out of the talking movies from the time the develop-
[fol. 6536] ment of sound picture equipment was started. For the period 1926 (which was the year prior to the formation of the Electrical Research Products Company) to 1931, the profits of the Western Electric Company and the Products Company, and the Products Company's subsidiaries, were $18,000,000. Of this total sum $6,400,000 represents profits made by the Western Electric Company on the sale of its manufactured articles to the Products Company. This profit was realized by the Western Electric Company after including in the cost of sales to the Products Company $3,500,000 of development expense for which it had made no expenditures and for which the Bell Companies received credit. $11,600,000 was made by the Products Company and its subsidiaries. In its first year of operation, the Products Company lost approximately $1,000,000 on the sound picture business. In 1931, it lost $2,300,000 on this business, but in the intervening years, that is, 1928 to 1930, it made $14,900,000 on the business. During this period of time, the Western and the Products Company have made approximately 14¼ per cent earnings on investment from the sound motion picture business.

In the limited time available, we have not been able to cover the whole 88 companies to ascertain the ratio of cash and cash items to total investment of each of those companies. We have examined 14 of the large companies whose investments aggregate 56 per cent of the total of the 88 companies. The ratio of total cash and cash items to total investment of these 14 companies is 17.2 per cent, as compared to the 5.4 per cent for the Western Electric Company on its Bell business during this period.

Prior to the organization of the Bell Telephone Laboratories, the Engineering Department of the Western Elec-

trio Company did research and development work for the American Telephone and Telegraph Company, in addition to that work done for the Western. That research and development work done for the American Telephone and Telegraph Company was paid for by it.

The profits made by the Western Electric Company in the years 1916 to 1926, inclusive, on instruments sold to the [fol. 6537] American Telephone and Telegraph Company, are included in the profits shown on Bell business in Exhibits A-77 and A-78. The sales prices of these instruments were determined in accordance with the terms of a contract dated February, 1882, which contract and a modification of it under date of April, 1908, were put in evidence on the former hearing of this cause as City's Exhibits 60 and 61. Because of this contract, this item of manufacture was dealt with in a manner different from the manner in which we dealt with our other items of manufacture. A special study was made of the costs and profits on that particular business.

The document identified as Plaintiff's Exhibit A-110 shows this information, which was asked for by Mr. Goldstein. This exhibit shows the net profits on sales of new instruments to the American Telephone and Telegraph Company for the period 1916 to 1926, inclusive. It shows the sales year by year, the net profit on sales before deducting Federal taxes, and the per cent net profit to sales before Federal taxes. It shows the Federal taxes year by year and the net profits afer deducting Federal taxes, both year by year and in total. It also shows that the per cent net profit to sales for this period of eleven years is 13.6 per cent. The sales were approximately 80 per cent of the average investment in this class of business and the earnings on investment during this same period were approximately 11 per cent.

Exhibits A-77, A-78, A-79 and A-80, show the profits and earnings on investment of the Western Electric Company in its Bell and non-Bell business for the period covered by those exhibits. When these exhibits were prepared, we had as a starting point the actual earnings of the Western Electric Company on its total business for each of the years included in the exhibits. Having those actual earnings on the total business for each of the years, what we have done

in these exhibits is to apportion the investment and earnings between Bell and non-Bell business for each of the years of the total period and for the total period covered by the exhibits on certain bases.

In making these apportionments, we did not have the [fol. 6538] actual cost of each of the more than 100,000 items manufactured by the Western Electric Company, nor did we have the actual cost of each of the more than 20,000 assembled articles of Western Electric manufacture. It was not necessary to apportion all of the investment and expenses as between Bell and non-Bell business, as parts of the investment and some parts of the expenses were directly allocable to Bell and non-Bell business and required no apportionment. Where such apportionment was necessary, it was made between Bell and non-Bell business mainly on the basis of the shop cost of sales. These standard shop costs of sales were not prepared specifically for use in this case; they were used currently, year by year, during the whole of the period.

The average investments of the Western Electric Company and its earnings on investment in both the Bell and non-Bell business were obtained each year during the period shortly after the close of the year's business.

Standard shop costs are quite generally used in industries throughout the United States.

In the Western Electric Company, the aggregate of these standard shop costs varies from the aggregate of the actual costs during the periods inquired into. This overall variation for the period 1921 to 1930 was 2/10 of 1 per cent. There was a variation for the period 1923 to 1931, amounting to 7/10 of 1 per cent.

In each year we ascertained the aggregate of the standard costs for all of our manufactured products and compared such aggregate standard costs with the aggregate of the actual shop costs of such manufactured articles. We found that the aggregate actual costs are either above or below the aggregate of the standard shop costs, and the difference we called "current variation". During the period 1923 to 1930, the greatest difference between the aggregate standard shop costs and the aggregate of the actual shop costs was in 1925, when there was a variation of $10,047,000. That is, in that year the acutal costs were higher than the standard shop costs by $10,000,000. This

$10,000,000 variation was divided $7,847,000 to lead covered cable, $126,000 to special commercial products, and $2,074,-[fol. 6539] 000 to telephone apparatus. That division was made from the records on the books in the case of lead covered cable and by special studies in the case of special commercial products. (In 1931 the volume was relatively small and only in part was there a necessity for special study for special commercial products.) We made these special studies for these variations on special commercial products, but the records of our operations show how much of this variation arises out of the manufacture of lead covered cable and how much out of telephone apparatus.

The price at which copper has been included in the standard shop costs from 1925 to date is 15 cents a pound; the actual price of copper has varied substantially above and below that figure. There have also been some variations between the cost of lead and the figure at which lead is included in the standard shop costs. The variations in either copper or lead as between the actual costs and the standard costs could not in any way effect the apportionment of the variation of $7,847,000 applicable to lead covered cable for the year 1925 as between Bell and non-Bell business. This is true because the same types of cable are sold to both Bell and non-Bell customers. The variations in labor, materials, or overhead (which are the three elements in our standard shop costs), as between the aggregate standard shop costs and the aggregate of the actual costs would not affect the apportionment as between Bell and non-Bell customers of this $7,847,000 variation applicable to lead covered cable in the year 1925. That is true because, as I just pointed out with reference to the material, the same types of cable are sold both to Bell and non-Bell customers.

In addition to this variation of $7,847,000 on lead covered cable, we had a variation of $2,074,000 applicable to telephone apparatus, and of $126,000 applicable to special commercial products. What I have just stated with reference to the variation for the year 1925 with respect to lead covered cable applies equally to the apportionment of this variation of $2,074,000 on telephone apparatus. Here again this is true because we sell similar types and character of [fol. 6540] telephone apparatus to both Bell and non-Bell customers. So the variation between the aggregate of the

actual shop costs and the aggregate of the standard shop costs on telephone apparatus for that reason would make no difference at all in the apportionment.

On special commercial products, a special study was made to see what the current variation applicable to that business was, and that study resulted in this figure of $126,000, which was apportioned between Bell and non-Bell business on the basis of the cost of sales to Bell and non-Bell customers. 92 per cent of that business is with non-Bell customers, and only 8 per cent with Bell customers, so only 8 per cent of this item of $126,000 was in that particular year apportioned to the Bell business of the Western Electric Company.

"Q. Now, I have purposely taken the year 1925 in order that we might discuss this with definite figures before us. I want to know whether the validity of your apportionments for any other year than 1925 is in any way affected by the variations which we have been talking about in each of those years?

"A. It is not."

In addition to the apportionment of this variation, we also apportioned certain expenses between Bell and non-Bell customers on the basis of the aggregate standard shop cost of sales. These items so apportioned were development expense, distribution expense and inventory revaluations. Development expense was entirely apportioned on that basis. Some part of the distribution expense is directly allocable to Bell or non-Bell business, and the remainder was allocated on the basis of standard shop cost of sales (probably one third of the expense of distribution is directly allocable; 37 per cent was directly allocable for the year 1929 and the remainder was apportioned for that year on the basis of the standard shop cost of sales). The inventory revaluations were directly divided in part, so far as the study indicated that they should be so divided. Where it was impossible to make that division directly, the [fol. 6541] division was made on the basis of the standard shop cost of sales. So far as these expenses are concerned, in no one of the years could any variation between the standard shop cost of sales and the actual cost affect in any way the apportionment of those expenses between Bell and non-Bell business.

"Q. I want to direct your attention now to your testimony at page 1127 of the transcript, in which, in answering a question propounded to you by counsel for the defendants as to why the entire pension fund accrual for 1924 had been charged against the Bell business, you said, and I now quote your language:

'It was because, as I explained, during those years, and in all of these exhibits, what we are showing are the actual figures which were made up for administrative purposes in those particular years. Now, if we went back now and made a redivision in the light of our present information, we would find some that we would add to Bell, and some that we would subtract from Bell.'

"I also call your attention to your testimony at page 1578 of the transcript, where you were being asked by Mr. Goldstein about the amount of cash and cash items included in the average investment of the Western Electric Company for the year 1925, in which you were referring to reports made currently by the Western Electric Company year by year, and in which you said—I now quote your language—

'And they were used for administrative purposes, and if you should go back now, in the light of present information, you would make changes all the way through. Now, my estimate of what that change would be as a whole, would be that there would be practically no difference in the rate of return, even if we made all of the adjustments that we might consider necessary.'

"I want you to state now the particular items which you had in mind when you made those answers. So that there may be no misunderstanding about this question, I desire you now to indicate what items there are which enter into your Exhibits A-77, A-78, A-79 and A-80, which you would treat in any way differently than the way they have been [fol. 6542] treated if you were now making the division between Bell and non-Bell business of the Western Electric Company?"

In 1924, an appropriation of $2,000,000 was made for the pension fund and charged entirely to Bell business. If I were to go back now and do it over again, I would charge $120,000 of that accrual to the non-Bell business, which would result in increasing the profits on the Bell business for that year by $120,000.

Up to within four or five years ago, patents that were purchased have been charged to reserve for contingencies rather than included in the cost of sales, as shown in these exhibits. If I were to go back and do the job over again, I would charge those patents year by year against the cost of sales in those particular years. The result of that change would mean that I would add $2,208,000 to the cost of sales in the Bell business, and, therefore, reduce the return on the Bell business by the effect of that amount.

The next item that I have in mind is the reserve for machinery. In 1928 we made a reserve for machinery of $2,000,000, representing the difference between 7.5 per cent and 10 per cent, as a result of a study indicating that our rates had been too low for some three or four years preceding. This $2,000,000 in our exhibits was charged against 1928 earnings. If I were to go back and do the job over again, I would apportion it between the years 1924, 1925, 1926 and 1927; that would make no difference in the amount for the period 1916 to 1931 or for the period 1923 to 1931.

In the period 1924 to 1927, we made an extraordinary reserve for depreciation of $8,233,000. If I were to do that job over again in the light of our present knowledge, and if it were possible to allocate it by years, I would say that that amount should be allocated over the period during which the additions were made (which was the basis of this computation, that is, from 1917 to 1927, inclusive).

If I had had foresight as to what Federal taxes were going to be paid, of course, I would have included the amount that we paid during the year and not the accruals, but at the time we close the books in each year we have to go by [fol. 6543] the accruals, which are always different from the amounts we finally pay to the United States Government. There was approximately from one hundred to two hundred thousand dollars difference between our accruals for Federal income taxes over this period and the actual payments.

The items to which I have just referred are the only ones in which I would make any changes if I were making a redivision or reapportionment in the light of my present knowledge.

If all these various changes which I have just been talking about should be made, it would reduce the return on investment on Bell business for the period 1916 to 1931 from 6.6 per cent to 6.5 per cent, and for the period 1923 to 1931, it would increase the return on investment for Bell

business from 7.1 per cent to 7.2 per cent. These various changes would have only a negligible effect on Exhibit A-84 (which is a consolidated earnings statement for the years 1916 to 1931), which would be on account of Federal taxes. I did not make the apportionments shown on Exhibits A-77, A-78, A-79 and A-80, merely because they were made currently; I made them because they are right.

In response to the question on cross-examination with reference to the appraisal made in 1927 of the Western Electric Company, I stated that the appraised value of the plant and property of the Company, less depreciation, was somewhat greater than the book cost of the plant as I define that book cost. I furnished yesterday the underlying data on this appraisal to counsel for the defendants. There was nothing included in this appraisal for going concern value, for patents, or for development expense. What was done was to arrive at the reproduction cost, less depreciation, of the physical property.

During the period 1923 to 1931, the return on investment on Bell business was 7.1 per cent and on non-Bell business, 11.3 per cent. All of the profits on the sales by the Western Electric Company of telephone apparatus to non-Bell customers are included in those non-Bell profits. The prices to non-Bell customers on telephone apparatus are never [fol. 6544] lower, and are usually higher than the prices to Bell customers. The earnings on investment on telephone apparatus sales to Bell customers for the period 1923 to 1931 was 7.7 per cent, and to non-Bell customers was 13.4 per cent.

Recross-examination.

By Mr. Goldstein:

March 24, 1932.

A study which I made indicated that the aggregate of the adjustments increasing or decreasing the gross profits neutralized themselves (with the exception of .2 of one per cent) for the period 1921 to 1930. The sheet marked for identification as Defendants' Exhibit D-80 is the study underlying that conclusion. That statement indicates the adjustments of the variations in shop operations during the year. The study includes the inventory revaluations which affect shop operations but does not include other inventory revaluations or other miscellaneous adjustments. In 1929,

the amount of the adjustments which I took into account showed a net aggregate of $1,250,000. The study is intended to cover only the shop operations and the result of the inventory revaluation in the shop. It does not cover inventory revaluations of completed merchandise not in shop nor other adjustments which are now the subject of conference between accountants for the defendants and myself.

My conclusion throughout my testimony that the extent of the variation was only .2 of one per cent is confined solely to those adjustments that enter into shop production and nothing else; but in the shop production is where there is a great possibility of variation. I think we will find, when we get through our conference, that the other adjustments are more directly allocable to different classes of business than are, perhaps, the shop operations. We do not allocate all of the adjustments on the basis of shop cost of sales; some are directly allocable. For instance, our program with the Electrical Research Products Company is that it will carry all the completed merchandise for sound picture equipment; [fol. 6545] that is, we ship that merchandise to them as soon as it is made so there is no adjustment for completed merchandise inventory revaluation applicable to sound pictures; they are completed merchandise.

So far as the spreading of the inventory revaluations and inventory adjustments between the Illinois Bell Telephone Company and the Bell System is concerned, I considered that the Illinois Bell represented a fair cross-section of the entire Bell business of the Western Electric. In my opinion, over a period of years this fair cross-section will take care of the adjustments that decrease or increase the profits.

My conclusion throughout my testimony as to the effect of the adjustments was not confined to the subject matter covered by this study; the study was involved only when I mentioned the .2 of one per cent. Similarly, when I mentioned the .7 of one per cent for the years 1923 to 1931, it was only intended to cover the particular variations included in the study.

The study which I have been talking about and which has already been made is the one shown on Exhibit D-80.

In connection with my testimony on re-direct, I spoke of the 1925 adjustments of which a greater part was cable. The excess of the current cost of the raw material over

the standard shop costs accounted for a large part of that adjustment; I do not have in mind how much.

"Q. And that excess was provided for in the prices actually charged to the customers, in connection with cable, for that year; is that correct?"

The prices of cable since 1924 have been fixed on a commercial basis and not on a cost-plus basis; they have been fixed for the Bell Companies at a lower price than made to our distributors, but our distributors have been able to make a substantial profit in competition with other manufacturers of cable on that cable which was sold them by us.

"Q. The fact that I am trying to try out, or that I am trying to bring out, is this, that in 1925 this excess of cost was absorbed by the prices charged during the year for the [fol. 6546] cable, which was not an adjustment that was made, that resulted at the end of the year, when your prices had not absorbed it during the year."

We attempted, of course, to make our prices of cable commensurate with the cost, including the changes in the cost of material that went into the cable from time to time. This same general practice is not followed in the case of telephone apparatus, although if there is a material change in the cost of production of a particular piece of telephone apparatus, the price might be modified in any one year without having a general price level change, up or down. The cable prices are naturally more responsive to fluctuation because of raw material prices than are the prices for telephone apparatus; this is because lead and copper constitute such a large portion of the cost of the cable.

(Document furnished by plaintiff in response to request of the defendants showing the standard and current costs of copper and lead in the years 1918 to 1931, inclusive, marked for identification as Defendants' Exhibit D-81.)

The document marked for identification as Defendants' Exhibit D-81 is correct.

In 1924, we began to draw our own copper wire at Hawthorne. Prior to that time, we were buying our wire from the outside. Exhibit D-81 shows the copper bar price; we had no real information as to what the price was prior to 1924.

The standard price for copper is still maintained in 1932 at $15.00. We have purchased very little copper this year, as we had purchased our requirements prior to the end of 1931. The standard cost figures for lead since 1926 have been maintained at $8.00, and the standard is the same for 1932. Our purchases of lead are also very limited as to amount under present conditions.

In 1925, our adjustments on lead covered cable represented the major portions of the total adjustments in the factory. I do not carry in mind whether this was true of [fol. 6547] the other years, but it is a matter of record which can be obtained if counsel for the defendants desire.

Defendants' Exhibit D-80 for identification was prepared shortly after the end of 1930; probably around a year ago. In that study the figures are related to a base of output to arrive at the .2 of one per cent. By "output", I mean the aggregate charges made by the shop for merchandise delivered to the Merchandise Department, whether sold or not sold. It is the cost of production of the shop for the year and not the cost of sales.

When, in the course of my re-direct examination, the following question was asked me:

"Q. Now did the aggregate of the standard shop costs vary from the aggregate of the actual costs during the periods inquired into?"

And the answer is:

"A. They did."

I understood "actual costs" to mean, when I later on related it to the .2 per cent of the shop, the shop production figures. To make it complete, the question should be, "Did the aggregate of these standard shop costs vary from the aggregate of the actual shop costs?"

And then the question is:

"Q. I believe that you have stated that this over-all variation for the period 1921 to 1930 was .2 per cent. Is that correct?"

And the answer is:

"A. That is correct."

"Mr. Goldstein: Now by the words, 'over-all variation', you mean, over-all—or you understood that to mean, over-all shop cost variation?

"A. Yes, sir.

"Q. And not over-all variation for all factors of adjustment, is that correct?

"A. That is correct.

"Q. You were asked: 'Q. Was there a variation for the period 1923 to 1931?'

[fol. 6548] "And the answer is: 'A. There was.

"'Q. What was the variation?

"'A. .7 per cent.'

"Your answer was intended to show the extent of the variation of shop cost adjustments only?

"A. That is correct.

"Q. And the next question: 'Q. Do you in each year ascertain the aggregate of the standard costs for all of your manufactured products and then compare such aggregate standard costs with the aggregate of the actual shop costs of such manufactured articles in the same year?'

"And the answer is: 'A. We do.'

"And the next question is: 'Q. You then find that the aggregate actual costs are either above or below the aggregate of the standard shop costs, is that correct?

"'A. That is correct.

"'Q. Now, when you get that difference, what do you call it?

"'A. We call it, current variation.'

"Now, in each of these questions, and your answers, they were intended, were they not, to cover only the comparison between the standard shop cost and the actual shop cost?

"A. I was talking about shop operation.

"Q. Yes?

"A. Yes, sir.

"Q. And you understand the question to only include that——

"A. That is correct.

"Q. —comparison?

"A. Yes, sir.

"Q. And not the comparison between the total of the aggregate costs, and the actual costs?

"A. That is correct."

When I speak of current variations throughout my testi- [fol. 6549] mony and in this connection, I mean the current variations in shop costs. To my knowledge we do not use the term "current variations" in connection with inven-

tories; we call the other items "adjustments" rather than current variation. Current variation is really confined to shop results.

There has been delivered to the defendants a copy of the letter to which I referred in connection with the sale of the option on the International Telephone Sales and Engineering Corporation for $4,000,000.

(Which said letter was marked for identification as Defendants' Exhibit D-82.)

When Mr. Edgar S. Bloom signed this as President, he was signing it as President of the Electrical Research Products.

I know what Mr. Bloom had reference to when he said, "I agree that in the event the results should not conform to the expectations between now and December 31, 1930". At the time of the agreement, a study was made of the probable business that would be given the Automatic Electric by the Western Electric Company through the period ending December 31, 1930, and also of the profits on that business. That is the study Mr. Bloom had in mind, when he spoke of expectation, at the time the letter was written. The option price of $4,000,000 was to be reduced by an amount not exceeding $1,000,000, if the Automatic Electric Company did not receive a certain amount of business and a certain amount of profits from the Western Electric Company. The amount of business given to the Automatic Company is indicated on the sheet identified as Defendants' Exhibit D-83. The apparatus indicated on this exhibit (D-83) as purchased from the Automatic Company is step-by-step equipment and practically all, as I understand it, was sold within the Bell System.

The prices established by the Automatic for this equipment since 1927 were those established under the contract made in 1927, to which I referred the other day as part of the transaction in which the sale of the option was made. As [fol. 6550] I stated, a study was made of the probable profits to the Automatic Company out of this future business. The actual amount of business and profits were more than were indicated in that study. Mr. Gary and Mr. Bloom are not in accord as to what they meant by "coming up to expectations". Mr. Bloom had in mind the expectations of the profits on the business for the period ending December 31, 1930. Mr. Gary had in mind the expectation of profits at

any time during the period 1927 to 1930 and the succeeding years under the contract. In other words, Mr. Gary feels that now the profits are not coming up to expectations; that is the basis of his claim for a $1,000,000 reduction in the payment that he has already made.

The memorandum of agreement referred to in the letter is in existence and is on its way here. The study to which I referred I do not think is on its way here.

"Q. Would you please make available at the time that you make available the memorandum of agreement, likewise the study?

"Mr. Thompson: I object.

"Judge Wilkerson: The question is whether the witness will do it.

"Mr. Thompson: I object to the witness producing it.

"Judge Wilkerson: If he answers in the negative, then your next step is to apply for the proper kind of an order, if you think you are entitled to it.

"Mr. Goldstein:

"Q. Will you make available for inspection the study which you refer to, upon the basis of which the million dollar adjustment was to be made as provided for in this agreement?

"Mr. Thompson: I object to the witness being asked to produce something that is obviously not in his possession or under his control.

"Mr. Goldstein:

"Q. Is that study in your possession or under your control?

"A. That study is a study that was made, not by me, but by Mr. Bloom.

[fol. 6651] "Judge Wilkerson:

"Q. Do you know where it is now?

"The Witness: Yes, sir.

"Judge Wilkerson: In whose custody is it?

"The Witness: I think that Mr. Bloom has it.

"Judge Wilkerson: You will have to make application for a rule on the company to produce it. The witness cannot be required to do it."

As I recall, the study simply shows the expected volume of business and expected profits during the period involved and contains no other items; that is, it is a statement of figures.

(Counsel for plaintiff agreed to make available to counsel for the defendants, memorandum of agreement between International Telephone Sales and the Electrical Research Products, dated May 26, 1927.)

In connection with Defendants' Exhibit D-83, there are also purchases from the Kellogg Switchboard and Supply Company and from the Stromberg-Carlson Telephone Manufacturing Company. The $11,000,000 of purchases shown as coming from the Stromberg-Carlson Company was telephone equipment, some of which was undoubtedly sold to the Bell System. I think part of it was sold to the Graybar Company. I do not have in mind the division of the sales. I think the same thing holds true in the case of the Kellogg Switchboard and Supply Company purchases.

(Document furnished to the defendants by the plaintiff, showing rented area leased before and after July 1, 1929, was marked for identification as Defendants' Exhibit D-84.)

Exhibit D-84 represents leases on July 1, 1929, and thereafter. At the end of 1928, we had leased 439,000 square feet of floor space, and at the end of 1929, 1,771,000 square feet of floor space, of which 556,000 square feet was leased after July 1, as shown on this exhibit. That would leave 776,000 square feet that was rented sometime between the first of January, 1929, and July 1.

(Document furnished to the defendants by the plaintiff [fol. 6552] showing additions to the pension fund and the credits for 1931, was marked for identification as Defendants' Exhibit D-85.)

The actuarial computation for 1931 conformed to the conditions at that time as we figured it. Of course, we are all the time gathering knowledge on that, and if we should go back and do it over again, it would be an entirely different figure and probably higher, in my opinion. However, the actuarial computation for the particular year, as computed at that time, called for these identical additions.

I said on my cross-examination that I was familiar with the principles involved in these actuarial computations, but

that I was not familiar with the detailed mathematical computations made to determine the exact amount of the pension accrual needed in any particular year. By "principles", I mean that I know it is based on separation rates, salary basis and service, age of employees, and miscellaneous data of that sort; beyond that I am not familiar with it.

"Q. What is the fundamental principle which underlies the actuarial basis as applicable to the probable future separation of employees from the Western Electric Company?

"A. I cannot answer that question."

I am not familiar with the details, but only with certain factors that are taken into consideration; I am not an actuary and I could not explain the details.

"Judge Wilkerson: Are you familiar with the fundamentals so that you can state them?

"The Witness: If you mean by 'fundamentals' the underlying actuarial data that go back of these accruals, I am not familiar with them.

"Judge Wilkerson: All right.

"Mr. Goldstein: The actuarial principles, not the details.

"Judge Wilkerson: Well, now, substitute the word 'principles' for the word 'details'?

"The Witness: Well, I am not particularly familiar with the details. I have assigned that job to Mr. R. W. Burgess, who is Chief Statistician of the Western Electric Company, in my department.

[fol. 6553] "Judge Wilkerson: Well, is he here?

"Mr. Thompson: Yes.

"The Witness: He is here.

"Mr. Haight: Now, if Mr. Burgess is not produced, so that we may inquire into it, of course it is valid ground for objection to everything computed thereon. That is our position, your Honor.

"Mr. Thompson: We are going to put someone on on this question.

"Judge Wilkerson: Very well.

"Mr. Haight: All right; that is all we want to know.

"Judge Wilkerson: Very well."

I stated that in connection with the study of the 88 companies I used the Standard Statistics Bulletin. I do not know whether the Western Electric Company gets the Standard Statistics Service individual cards; I presume it does.

I personally have not seen them. I stated that the data was determined entirely from Poor's and Moody's Manuals and that the Standard Statistics Bulletin was no more than an index to determine the companies, concerning which we got the facts from Poor's and Moody's Manuals.

I did not understand that I was to determine whether Western guaranteed non-Bell customers against infringements on apparatus purchased from Western.

(Counsel for the plaintiff agreed to furnish the information concerning guaranty to non-Bell customers to counsel for the defendants.)

There was a revision in the prices of the Automatic to the Western Electric Company from 1927 to the present time, which consisted of some lowering in the prices.

The prices from the Automatic are based on a cost-plus basis, and the contract provides for a periodic investigation of these prices.

Exhibit A-83 is intended to show the effect of the price reductions for the year in which they were made, irrespective of the date upon which the particular reduction took place.

[fol. 6554] "Q. If a million items were sold in the year 1924, for instance, and on the last item, on December 29th of that year, you reduced the price $1, for the purpose of this study, you would show a reduction of $5,000,000; is that correct?"

The question is so exaggerated as to hardly be representative. We will take as an example the price reduction of July 1, 1929; we computed the amount of the price reduction on the volume of business in the year 1929 as if the prices in effect after July 1, 1929, were in effect for the whole year. We related back the price reduction to the sales made before the reduction, and arrived at what saving would have been made if the price reduction had been made the first of the year.

In connection with my statement on re-direct examination concerning the ratio of cash to investment in the industrials, as shown by Poor's and Moody's, we took the average amount of cash, computed in the same way as average investment. We took December 31 of the two years and divided the figure by two.

For the amount of cash included in our average invest-

ment in Plaintiff's Exhibits A-77, A-78, A-79 and A-80, we took the average for thirteen months, but it would probably make very little difference. I do not know whether it would make any difference in connection with other companies, as I do not have the monthly statements of the other companies.

The net profits to sales on telephone instruments, shown in Exhibit A-110, is 13.6 per cent. I stated that the relation of sales to average investment is 80 per cent. The 80 per cent has nothing to do with the net profits to sales, but simply means this: for the purpose of illustration, if we had an investment of approximately $6,000,000, on which we made sales of $5,000,000, we had less than one turnover a year. Net profits to sales is determined by the sales to the gross profits and expenses, and has no relation to turnover; the turnover only affects the return on investment. When you bring in turnover, you have to bring in the investment and [fol. 6555] relate the net profits to the investment; then, if you have an investment which is higher than the sales, of course, the return on investment is less than the net profits on sales.

Many manufacturing companies use standard costs. One of the uses of standard costs is to have a measure to determine the efficiency of the various departments and various operations of the manufacturing companies.

The studies which I stated had been made to separate the adjustments between telephone apparatus and special commercial products were not engineering studies but accounting studies. Of course, in making that accounting study we tapped all of the information we could get, in order to get an accurate result. It might be that engineers, and certainly people connected with the manufacture of special commercial products, were consulted concerning it, but it was not an engineering study but an accounting study.

I spoke of an adjustment of $2,000,000 for machinery, made in 1928, and mentioned a study in that connection. What I had in mind was that we had a statement at that time showing how much of that $2,000,000 was applicable to 1924, 1925, 1926 and 1927. That study was not made available to the defendants in connection with the statements concerning the extraordinary depreciation and other depreciation; it was an entirely different subject. I could not say whether that study is in Chicago now or not, but it will be made avail-

able for inspection by defendants if it is in existence. I can give the division of the amount.

I stated that the net earnings on the non-Bell business for the years 1923 to 1931, inclusive, were 11.3 per cent, and when asked if that figure included all profits on sales of telephone apparatus to non-Bell customers, I said that it did. These figures include the entire profit on the sales of the Western Electric to its non-Bell customers. Prior to 1925, these customers were the ultimate users, and, subsequent to 1925, they were the Graybar Company and the Electrical Research Products and its distributors. The 11.3 per cent does not include any portion of the profits of the Graybar [fol. 6556] Company, or of the International Western Electric Company, or of the Electrical Research Products, or of the Northern Electric Company.

I furnished defendants a document entitled "Depreciation expense included in cost of plant made, 1916 to 1931, inclusive".

(Which said document was marked for identification as Defendants' Exhibit D-86.)

This exhibit shows that $3,000,000 was included as depreciation expense in the cost of plant made by the Western Electric Company during that period, and that $2,176,000 was included for the period 1923 to 1931. It also shows that during the period 1916 to 1931 there was $72,000,000 of plant made by the Manufacturing Department, and for the period 1923 to 1931, $54,000,000 of plant was made by the Manufacturing Department. The $3,000,000 is determined by a study of the probable amount included; it had to be an approximation. We did not have any rates and the study was made in New York while I have been out here, so I am not familiar with the exact method by which it was done.

We do not think it necessary at all to determine the amount of depreciation expense that goes into cost of plant, because we feel that the cost is entirely reasonable and that by manufacturing our own plant we are getting those facilities at a considerably lower price than we would if we bought them from outside sources. We did, however, include as one item of cost of plant depreciation expense. The study as to the amount included in the cost was not made by me, and I am not in a position to say how it was made. I do not think that a study has ever been made

before this one, which was made up specially to give to the defendants.

We know that depreciation expense is included in the cost of plant, because machinery, buildings and service equipment, which are manufactured in our plant, carry a pro rata share of the load of the plant, and the load or burden of the plant includes depreciation. I cannot say if, when it is contemplated to make an item of plant, there is [fol. 6557] a cost study showing the probable cost of that item. I presume that items of plant are manufactured on the basis of a cost study, but I have never inquired into it.

I furnished the defendants the two sheets identified as Defendants' Exhibits D-87 and D-88.

"Mr. Goldstein:

"Q. 'Total 1929 average investment Bell and non-Bell business, on percentage, apportioned on basis of standard cost of sales'?

"A. Yes.

"Q. I notice a footnote, 'Apportioned on the basis of sales'. Is that intended to be also different than the heading 'Cost of sales'?

"A. That applies to the item Receivables, and applies only to 5 per cent of the receivables. In other words, there are certain miscellaneous receivables of varying nature which are included there which have to be apportioned on some basis. They are not directly allocable, and we have used the basis of sales in that case."

When I say "basis of sales", I do not mean on the basis of the cost of sales, but the basis of sales.

Arthur Young and Company have made yearly audits of the books of the Western Electric Company for the last four or five years. The only official certificate of Arthur Young and Company in each year is the certificate appearing in each of the annual reports of the Company. We have not asked for any certificate other than those. Arthur Young and Company have made other audits for us, in connection with special conditions, that we asked them to do, but the only audit, so far as the balance sheet and income statement as a whole is concerned, is covered by their certificate in the annual report.

The rental for the space occupied by the Western Electric Company at 195 Broadway is paid on the basis of the

charges made by the 195 Broadway and 205 Broadway Corporations; it is on a per square foot basis, and is made currently. The amount paid per square foot for any year depends upon the operating charges of the building. I think there is included a modest item of return on invest- [fol. 6558] ment, but I am not sure about that; those are details that I have not looked into for some time.

"Q. I understood you to say somewhere in the testimony here that you paid a portion of the operating expenses, and a certain per cent on the stock, as a part of your rent?

"A. I think you are mistaken.

"Mr. Thompson: Mr. Goldstein——

"A. I do not think I testified at all on that.

"Mr. Thompson: No.

"A. That is an entirely new subject to me.

"Mr. Goldstein:

"Q. You also testified about space that you rented to the New York Telephone Company.

"A. Well——

"Q. (Continuing.) At 395 Hudson, is that correct?

"A. I might have testified that we owned the 395 Hudson Corporation in conjunction with the New York Telephone Company, but I do not recall any testimony that I have given with reference to rent charges.

"Q. Did you testify—did you base any of your rentals on the basis of getting back a proportion of the operating expense and interest at 7 per cent on the stock?

"A. I know that is the case."

The 395 Hudson Corporation is a real estate corporation formed to construct and own the building, and it must get a return on its investment. That investment consists of stock, notes payable, and a 5 per cent mortgage, and the rent rates must be sufficient to pay the interest on the mortgage, the interest on the notes, and a fair return on the capital invested, on the stock.

"Q. And you figured that at 7 per cent, as I understood the testimony?

"A. Well, I don't recall testifying to that.

"Mr. Thompson: I don't think there was any testimony about that.

"Mr. Goldstein: Well, I will find out.

"Q. But the basis of it is as you described?

"A. Yes.

"Q. All right.

[fol. 6559] "A. That would be the fact, it is either 6 or 7 per cent.

"Q. Yes.

"A. I don't recall which."

(Copies of the resolutions of the Board of Directors for the years 1925, 1926, 1927, and 1928, authorizing the extraordinary depreciation, together with a document used in connection with the determination for each of those years, were identified as Defendants' Exhibits D-89 and D-90, respectively.)

These documents were furnished by me to the defendants, and contain all the data of which I know pertaining to that subject matter.

(Document entitled "Orders on hand December 31", pertaining to the years 1916 to 1926, marked for identification as Defendants' Exhibit D-91.)

We have not readily available corresponding data to that contained in Exhibit D-91 for the years since 1926. We did not file that information after 1926.

"Q. Mr. Gregory, you testified on about June 17-19, 1931, in a case entitled 'In the matter of the Investigation and Inquiry of The Public Utilities Commission of Ohio, upon its own motion, of the Ohio Bell Telephone Company'.

"A. Yes, sir.

"Q. In connection with that testimony, I read you the questions and answers from the transcript which was furnished to us. I will ask you whether these questions were asked of you, and whether you made the following answers:

"Mr. Thompson: Are these questions in impeachment? Is that their purpose?

"Judge Wilkerson: Well, of course, obviously, it is the only purpose it could have; it must be. I assume that is the purpose.

"Mr. Thompson: I just wanted to inquire.

"Mr. Goldstein: Yes.

"Q. The question was: 'I believe you testified that your own prices are going up due to the depression, is that correct?

'A. You mean our prices of materials?

[fol. 6560] 'Q. Of materials, yes.

'A. Yes, sir, our prices have gone up because of the fact, to some extent, because of the fact that during the ten year period, we have reduced prices to too large an extent while other companies were increasing their prices with increased volume of business, we were decreasing our prices, and we decreased our prices in 1929 to a very large extent, not realizing that the depression was ahead of us.'

"Judge Wilkerson: How are you going to impeach the witness with stuff of that character?

"Mr. Thompson: Yes.

"Mr. Goldstein: It is next.

'In 1926 and 1927, you set aside an eight million dollar depreciation in anticipation of a construction program which hadn't yet been commenced, but which was to be written off in 1931 and 1940, and in 1929 you reduced prices, not anticipating the depression?

'A. They are two entirely different things, Mr. Herbert. In 1929, as far as prices to the associated companies are concerned, we felt in every year as we did in 1929, that we should make such reductions in prices to the associated companies as we could and still maintain a fair return on the investment. As far as prices are concerned, we felt that if the depression comes and if there is a demand for increase in prices, as we have reduced, so in fairness, we could increase the prices. But when it comes to the construction of plant, this is not a reserve against construction of plant in 1931 to '40. It is a write-off, it is a reserve against a write-off which we may be forced to make on plant that has already been constructed from 1918 subsequent to the war up to the present time, the cost of which we feel should be apportioned and charged against that period rather than against the period in 1931 to 1940, which it seems pretty evident is not going to be as active years as have been in the last ten years.'

"Did you make those statements, and those answers?

[fol. 6561] "Mr. Thompson: Of course, it is not impeaching, but we have no objection whatever.

"Mr. Goldstein: All right.

"Q. Did you make those?

"A. I certainly did.

"Judge Wilkerson: Let the stenographers copy the report into the record by agreement."

I think that the Western Electric warehouses carry some stock for the Long Lines Department, but I am not entirely familiar with that subject, as it comes entirely under the Telephone Sales Department. I do not know whether the Long Lines Department has a warehouse.

NOTE.—Witness pointed out that wherever in his testimony he spoke of the spread over the Bell and non-Bell business according to the standard cost of each class, he meant to testify that this was done in general according to the standard cost of each class of apparatus; that is, telephone apparatus, cable and supplies separately.

. . . . . .

[fol. 6562] ALLAN B. CRUNDEN, recalled as a witness on behalf of the plaintiff, having been previously duly sworn, further testified as follows:

Direct examination.

By Mr. Blackman:

May 9, 1932.

I prepared the sheet which purports to show the per cent that the Long Lines Department is of the total associated operating companies (including the Long Lines Department itself and the Bell Telephone Company of Canada), with relation to certain factors, namely, exchange and toll lines, central office equipment, and plant in service less land and buildings, all for the years 1923 to 1931, and plant in service as of June 30, 1931. I prepared this at the request of Dr. Jewett to furnish him the ratio shown on the last column. The sources from which I obtained the figures shown are indicated at the foot of the exhibit. I prepared it from the Comptroller's report containing those figures and from some monthly reports of the Long Lines and the Bell Telephone Company of Canada. The figures which appear on my Exhibits 99, 100, and 101, came from these same documents.

(Sheet was offered in evidence as Plaintiff's Exhibit A-111. Ruling on admission was reserved until the close of the cross-examination.)

I prepared the sheet purporting to show the ratio of certain figures for the Chicago area to the corresponding figures for the total associated operating companies, excluding the Long Lines but including the Bell Telephone Company of Canada. The matters covered are exchange and toll lines, central office equipment, and plant in service less land and buildings, all for the years 1923 to 1931, and plant in service and company stations for June 30, 1931, only. I prepared this similarly at the request of Dr. Jewett, and the sources of the information are the same as for Exhibits 100 and 101; the sources are indicated at the foot of the [fol. 6562a] statement. This paper and the other one which I have referred to were correctly prepared, and, I believe, are entirely correct.

(Said document was thereupon marked for identification as Plaintiff's Exhibit A-112.)

I prepared the paper purporting to show the ratio of plant in service of the Chicago area to the plant in service of the total associated operating companies, including the Long Lines and the Bell Telephone Company of Canada, for the years 1923 to 1931, inclusive. I prepared this at the request of Dr. Jewett. It is correctly prepared and correctly sets forth what it purports to show. The figures in this document were obtained from Exhibits 100 and 101, with the exception of the percentages in the third column, which are computed from the figures shown in the preceding column.

(Said document was offered in evidence as Plaintiff's Exhibit A-113.)

Cross-examination.

By Mr. Goldstein:

Exhibits A-111, A-112 and A-113 were prepared subsequent to the hearings in the Ohio case and were never presented in that case.

The source of the information for Exhibit A-111 for total associated operating companies is C. R. 64-A, which in turn is based upon M. R. 6. The source of the information for Exhibit A-112 is M. R. 1 and 1-A.

In taking the central office equipment of the associated companies on, for example, A-111, I assumed it is central office equipment; I have taken a certain account. I have not testified regarding the character of use of the items found in the account. My exhibit depends upon the fact that certain equipment is included by definition in a certain account of the Interstate Commerce Commission's system and the computation is purely mathematical. The definition of the Interstate Commerce Commission does not appear on the M. R. reports from which I took the information. It is not correct that the M. R. reports state [fol. 6562b] that the compilation is not in accordance with the classification under the Interstate Commerce Commission rules.

Monthly Report No. 1, identified as Defendants' Deposition Exhibit 79, states "these figures on this report are not arranged in exact accordance with the book accounts prescribed by the Interstate Commerce Commission and this fact should be recognized in quoting and using them".

That has nothing to do with the central office equipment, however. The central office equipment figures, as well as all the other figures in these exhibits, are merely the figures shown opposite certain wording for each of the accounts on these sheets. These sheets do not contain any definitions of the Interstate Commerce Commission.

(Defendants move to strike out the exhibits on the ground that the underlying records from which they are compiled were not made available to them and had been refused to them. Ruling on motion was reserved.)

Redirect examination.

By Mr. Blackman:

The phrase standing at the head of that paper referred to in my cross-examination had reference to the fact that Monthly Report No. 1 contains a section entitled "Earnings and Expenses", and in that section the revenues and expense and net earning items are shown in a form which was adopted by the Bell System prior to the issuance of the uniform system of accounts of the Interstate Commerce Commission. For convenience of comparison, this particular report has been carried along in the form which was in use prior to 1913, when the Interstate Commerce Commission system took effect. There is nothing in here which is out

of line with the uniform system, but it is simply a slightly different arrangement of the items, and a slight difference in terms. For example, the Interstate Commerce Commission uses the term "gross income" as meaning substantially what is referred to on this report as net earnings.

The changes, whatever they may be from the Interstate Commerce Commission classification, have no bearing at all on any of the figures which I have used.

[fol. 6563] Recross-examination.

By Mr. Goldstein:

This same report on which that statement is made also contains a condensed summary of the balance sheets.

The notation that the figures on this report are not arranged in exact accordance with the book accounts prescribed by the Interstate Commerce Commission and this fact should be recognized in using them and quoting them, refers primarily to the revenues and expenses. My conclusion that it refers primarily to that is not based upon anything found on the sheet, but it is based on our knowledge as to why we continued that for use. The only way you could determine that the asset items are in accordance with the Interstate Commerce Commission's rules is by checking back these reports against the reports of the companies to the Interstate Commerce Commission. Without that there is no way you could determine whether the items of assets on these sheets are in accordance with the accounts of the Interstate Commerce Commission if you fail to be satisfied that these are correct reports in themselves. They are reports made in the regular conduct of business. Without that assumption there is no way you can tell, without that analysis.

Redirect examination (continued).

By Mr. Blackman:

The designation in the telephone company of the paper referred to as bearing the legend at its top "This does not conform to the Interstate Commerce Commission's requirements" is C. R. 51-A.

In connection with Exhibits A-111, A-112 and A-113, I have not used any part of that report, as to any assets.

No part of these asset figures shown on that paper were used in connection with my previous exhibits.

My statement in answer to Mr. Goldstein, that it would be necessary to see these individual reports in order to check the asset figures on those sheets, would have nothing to do with checking any figure which you used in this case. That statement is true, but it is not relevant, because I did not [fol. 6564] use that report. I used C. R. 64-A, which is a report that has been submitted to the defendants.

The accounts and figures on that report are in exact order in accordance with the reports to the Interstate Commerce Commission.

Recross-examination.

By Mr. Goldstein:

64-A and 51-A cover the same assets. They represent the same items and are then computed in the same manner.

FRANK B. JEWETT, called as a witness on behalf of the plaintiff, having been first duly sworn, was examined and testified as follows:

Direct examination.

By Mr. Blackman:

May 9, 1932.

My name is Frank B. Jewett. I reside at Short Hills, New Jersey. I am Vice President of the American Telephone and Telegraph Company, and President of the Bell Telephone Laboratories, which position I have held since January 1, 1925. As Vice President of the American Telephone and Telegraph Company, I am — responsible executive in charge of all of the development and research activities of that company, and of the Bell System. As President of the Bell Telephone Laboratories, I am the chief executive officer of that organization, which is the part of the Bell System in which the work of experimentation and physical and chemical research is carried out.

These two departments are in effect part of a single organization, the duties of which are to conduct fundamental research in the field of electrical communication; to conduct more specific research looking to the application of fundamental knowledge, whether obtained as a result of our work or from outside sources, to the end of producing improved instrumentalities for the giving of electrical commu- [fol. 6565] nication services. In addition to that, the Department of Development and Research sets the general require-

ments to be met by new equipment, apparatus or circuits, and is the final judge as to whether the things produced meet those requirements. The requirements which we set for material to be developed and furnished, developed by the Laboratories or by others, are determined from our general knowledge in the communication field, and from our contacts with the operating units of the Bell System, either directly or through the Department of Operation and Engineering.

In addition, it is our function, when new equipment has been developed and standardized, to prepare the fundamental requirements for its installation, operation and maintenance. That information is furnished to the operating units in the form of bulletins or circulars. It is the function of the Bell Laboratories at the same time to furnish to the manufacturer, the Western Electric Company, or whoever it is that is to manufacture, the requirements for the manufacture of that sort of material, in so far as requirements are required, and to check the product before it is put into the telephone plant. Further, the Bell Laboratories is the ultimate judge of whether the material to be furnished to the operating units of the Bell System meets the specifications which have been set.

The requirements, standards and specifications to which I have referred are standards, requirements and specifications for a number of things to be used in the plant of the Bell System.

My primary education was in California, where I received in 1898 the degree of Bachelor of Arts in Electrical Engineering, from what is now the California Institute of Technology, then called Throop Polytechnic Institute. From 1898 to the spring or summer of 1902, I was a graduate student of the University of Chicago, and was research assistant to Professor Michelson during the latter part of that time. In 1902, I received my degree of Doctor of Philosophy in Physics and Mathematics at the University of Chicago. After spending the summer as an instructor at the Univer- [fol. 6566] sity of Chicago, I became an instructor in physics and electrical engineering at the Massachusetts Institute of Technology in Boston.

In the fall of 1904, I joined the Engineering Department of the American Telephone and Telegraph Company, which was then in Boston, and remained in that department, both in Boston and later in New York, until the spring of 1912.

During the major part of that time, I was the Transmission and Protection Engineer of the American Company, in charge of its transmission and protection problems, particularly those of a research character. In the spring of 1912, I became Assistant Chief Engineer of the Western Electric Company, and I remained in that capacity until the fall of 1916, when I became its Chief Engineer. In 1922, I became Vice President of the Western Electric Company, in charge of its engineering, manufacturing, installation and general merchandise business, in so far as it related to the Bell System, and I remained in that capacity until I became Vice President of the American Telephone and Telegraph Company, and President of the Laboratories, on the first of January, 1925.

At all times during that period I had contact with research work. My position as Transmission and Protection Engineer of the American Telephone and Telegraph Company was essentially in control of that phase of the research and development work of the company at that time. I was instrumental in inaugurating a research laboratory department of the Bell System during that period.

At the time I became Assistant Chief Engineer of the Western Electric, there were two assistant chief engineers of that company, who divided, somewhat generally, the supervision of the work of the Engineering Department between them. My part was primarily concerned with the research and development activities as distinguished from the more purely operational activities. Of course, as Chief Engineer of the Western Electric Company I had general supervision over all of the research and development activities of the Laboratories. When I became Vice President of [fol. 6567] the Western Electric Company, although my supervision of the research and development in the Western Electric Company was somewhat more remote, I nevertheless was responsibly in charge of it, with the Chief Engineer reporting to me. Since January 1, 1925, my duty has been primarily that of supervisor of research and development.

I am a Fellow of the American Institute of Electrical Engineers, and a Past President of the American Institute of Electrical Engineers. I am a member of the National Academy of Sciences, of the National Research Council, and was for a number of years Chairman of its engineering and industrial research division. I am a member of a number

of foreign societies, including the Institution of Electrical Engineers of Great Britain. As to degrees and honors, in addition to my Doctor of Philosophy degree, to which I have just referred, I have received the degree of Honorary Doctor of Engineering, or Doctor of Science, from Columbia University, New York University, Rutgers University, Dartmouth College, the University of Wisconsin, the University of Chicago, and the Case School of Applied Science in Cleveland. I have received the Distinguished Service Medal from the United States Government, and the Order of the Rising Sun and the Order of the Sacred Treasure from the Emperor of Japan.

At the present time, the Department of Development and Research of the American Company comprises a force of about 550 or 560 people, devoting all of their time to its activities. The Bell Telephone Laboratories at the present time has a force of something more than 5,000. These forces are somewhat smaller than they were a year or so ago. The total annual expenditures in the two departments have been, for all purposes, as high as $22,000,000 or $23,000,000 per year. They are running at a slightly lower rate at the present time.

A very considerable part of that $23,000,000 is paid for what we designate as fundamental research and development. Another considerable part is paid for more specific development, which might be termed the engineering appli- [fol. 6568] cation of fundamental knowledge to the production of specific things. In addition to that, there is a certain amount which is accounted for by so-called engineering services, particularly in the Laboratories, and also a certain amount which is accounted for by limited manufacturing services which the Laboratories perform. That latter principally has to do with the manufacture of vacuum tubes, and other thermionic devices which are used in the Bell System and by the Western Electric Company, and which, while they are of a character that would normally be manufactured, would not be a function of the Bell Laboratories; they are manufactured in an organization under our control simply because they are such new things that it is impossible to set the requirements up so that they can be handled in an ordinary manufacturing establishment.

Of all this money that is spent, that part of it charged to my department for development and research of the American Telephone and Telegraph Company varied consid-

ably over the last ten years. It has ranged, as I remember, from about $2,500,000, or thereabouts, in 1923, to as high as $9,000,000. At the present time it is running at possibly a little less rate than that. About half of the laboratory expenses which are charged to development and research are billed to the American Company. The other expenses are billed principally to the Western Electric Company. A smaller portion is billed to the Electrical Research Products Company for work done on its order. So that of the total expenses of the Laboratories, the Western Electric bears two-thirds or three-fourths of the total development and research amount. Of course, the manufacturing services, and the manufacture, are all billed to the Western Electric, because that is really not a development function, but is a service function which is performed for the Western Electric and not for the American Company. It would be performed by the Western itself, had they the facilities for doing that sort of thing.

These sheets are the analysis of expense by classes of work, the annual sheets of the Department of Development and Research for the years 1923 to 1931 inclusive. They [fol. 6569] show the expenses of my department so far as the salaries, wages and other expenses of the 550 or more men are concerned. They also show the expenses which are incurred in connection with work in the Laboratories charged to the Development and Research Department, or, in earlier years (the first three years I think it was), expenses of a similar kind incurred by the Western Electric Company and billed to the American Telephone and Telegraph Company. Those were the years preceding the formation of the Bell Laboratories.

There was no difference in the source of the research information and work in the Bell System for a number of years prior to the organization of the Laboratories, in 1925, so far as the Department of Development and Research was concerned. That department has been organized as a department longer than the Bell Laboratories. The department as a department (separate from the Engineering Department of the American Company) was organized in 1919, but I was not a member of the American Telephone and Telegraph Company at that time, so I may be in error; but it is about that time. Prior even to 1919 that class of work was done. It was done in a part of the Engineering Department of the American Company, and was later split off,

because of its growing size, to be a separate department of the American Company. The American Company has had no laboratories, except very insignificant ones, for experimentation in connection with new things it has sought to develop since 1907. Prior to 1907, the American Company did have a laboratory for the conduct of the physical part of the research and development department. From 1907 to 1925, when the American Company wished laboratory work done in connection with its research and development studies it had that work done in laboratories which were maintained as a part of the Engineering Department of the Western Electric Company. All of the laboratorial functions of the Bell System were consolidated in a single laboratory in 1907, and that consolidation was in the Engineering Department of the Western Electric Company. The [fol. 6570] laboratory was located in New York. That laboratory work in connection with the American Telephone and Telegraph Company development was paid for by billing to the American Company, that is, the Western Electric billed the American Company for work that it did for the account of the American Company. There were separate requests made on the Western Company to do this work.

When the Laboratories were formed, there was no real difference whatever in the way in which the work was conducted. The Laboratories were organized as a corporate entity, part of the Bell System, on January 1, 1925, and at the time of their organization were the entire Engineering Department of the Western Electric Company. The Western Electric Company at that time ceased to have an Engineering Department by name, and ceased to have an Engineering Department as a functional part of its organization in so far as the development of products was concerned. The physical apparatus and forces that constituted that department in the Western Electric Company were transferred in their entirety to this new company.

The sheets to which I have referred are in slightly different form for the first three years than for the last period. The content is the same, but the arrangement and classification is slightly different; the sheets from 1926 onward are in the present standard form, which was introduced following the organization of the laboratory. Those sheets show payments to the Laboratories in various years.

All of the work which the Laboratories do for the account of the Department of Development and Research is done

the authorization of that department. At the time the authorization is given, the estimated cost of the work is a part of the papers in the case, so that in authorizing the Laboratories to undertake a piece of work for the account of the American Company, we authorize a rate of expenditure or a total amount of expenditure and that is the authorization for the Laboratories as they incur the expense under that authorization to render bills to the American Company for payment. Those bills are the cost incurred under the [fol. 6571] authorization with whatever the normal loadings are; they include all of the costs but no element of profit. The work is done without any profit, and so is of the general amount that would have been incurred had the American Telephone and Telegraph Company itself conducted the work in its own laboratory.

When these bills come back from the Laboratories for the work done in any case they are referred to the man or men who authorized that work. The amount billed is checked with the estimate originally given. The bills as they are rendered to the American Company by the Laboratories are referred to the department and sub-department heads, and, in the case of any considerable items, to the men who are in responsible charge of the work, to check as to accuracy with regard to the work rendered, the charge for the same, and as to whether it comes within the authorization.

There is a wide variety of cases which are referred to the Laboratories and which they are asked to prosecute and make experiment upon. They cover a wide variety of things, but, in general, they all have the same basic element, that is, the element of acquiring physical information, scientific information which can only be acquired in a laboratory, or of creating something which involves that kind of information.

In many cases in connection with our theoretical studies in the Department of Development and Research, we are in need of scientific information which does not exist, and which can only be obtained by the conduct of experimental work, and, as we have no facilities for carrying on that experimental work, and the Laboratories have, that sort of work is submitted to them to be done. When it is completed, it may have no immediate application in physical things, but it becomes a part of our increased store of

knowledge. Or we may be in need of some information of a physical character to enable us to advise the operating companies with regard to the installation or operation or maintenance of plant. That kind of work is submitted to the Laboratories to get the information.

[fol. 6572] Or it may be that we have carried work far enough along so that the time has come to carry out those physical experiments which underlie the design of apparatus and those are submitted to the Laboratories. In general, as I have said, the kinds of work submitted to the Laboratories have to do with physical things, or the acquisition of knowledge which can only be acquired by experimental rather than by purely intellectual processes.

These cases for which we have been billed are confined to that general class of work except that sometimes in the conduct of our work we ask from the force of the Laboratories assistance of a kind where experimental work is not required, and that is billed to us.

Also, patent expense, incurred by the Laboratories organization in connection with patent matters of the American Company, is billed to the Department of Development and Research, and appears on these sheets, but is there only in transit to the Legal Department. It appears there simply because the Laboratories render all their bills to the American Telephone and Telegraph Company through the Department of Development and Research. Bills for that patent work are passed on to the Legal Department of the Company. The broad classification is that the work which is done by the Laboratories and billed to the Department of Development and Research is either work of a broad, fundamental character, which is required in the general studies for the advancement of the telephone art, or is work of a laboratory character, which relates to the problems of transmitting telephonic or telegraphic currents, but is not primarily related to the construction of apparatus. On the other hand, the work which is billed to the Western Company is that work which, in general, has to do with the development of specific pieces of apparatus or equipment, or the design of circuits which are to be manufactured, sold, installed, utilized, and maintained.

As these sheets show, the expenses of my department are classified under a number of general classes and sub-classes. [fol. 6573] In the last five or six years, there have been, I think, nineteen general classes and over a hundred sub-

classes. There are eighteen or nineteen general classes, and under most of them there are a considerable number of subclasses. In some cases, the classifications, while appearing on the sheets, carry no charge. That is largely because this same general classification obtains in the Laboratories as well, and some classifications have charges there which do not appear on the D. and R. classification. In general, when work is authorized, the number or class assignment is given with the authorization, and all expenses, either direct or billed from the Laboratories, which pertain to that particular work, are charged to that classification. That is, in the case of direct expenses in the Department of Development and Research, the time of men on that classification is charged to that classification, and all expenses incurred, and billings from the Laboratories are charged to the classification.

Up to three or four years ago, we had an even finer division of the authorizations, in that every case in the Department of Development and Research bore a number or designation, and work was charged finally to those cases. But because these cases very frequently involved different general classifications, some years ago we came to the more general allocation of expense by these classes and subclasses, and do not have the specific case number scheme in the Department of Development and Research. As the work is done, both the time and all the expenses which are incurred, such as material, or, if they involved traveling or outside expenses, are all charged to these classifications. These sheets are then made up by the Office Manager of my department from those time sheets.

These sheets are the general current information which I and my subordinates have for the maintenance of control of the operations of the Department of Development and Research. They are relied upon by us and they are accurate. They contain information which is necessary for us in the proper conduct of the business. Well, including the two forms which are shown in this exhibit, these sheets have [fol. 6574] been maintained for considerably more than ten years. I don't know just how long, because they were inaugurated while I was an officer of the Western Electric Company, but in the form in which the first three years' sheets here appear, they were in existence for a considerable period prior to 1923, which is the first sheet shown here.

(Plaintiff offered Exhibit A-114 in evidence; admitted.)

The expense figure of $23,000,000 a year, which I gave, was for development and research in both the Laboratories and Department of Development and Research, although that figure is not far wrong for the total laboratory expenditures. The expenses that are shown on these sheets are substantially less. The highest is for the year 1930, which is a total of about $10,000,000 in D. and R., including the charges of the Laboratories. In 1923, it was about $2,800,000.

I have made no computation relating those expenditures annually to the amount of plant of the Bell System for each of the years in this period by years, but I have made a computation taking the average of research and development expense for that period related to the average plant investment of the Bell System in the same period. That relation is that on the average we have expended about $1.89 a year for each $1,000 of plant in service. Of course, that same average would be arrived at if you took the figure for each year and then averaged the result of that. As I remember the figures, it would be less in the years 1923 to 1925, and then more in the years 1925 to 1930.

I am generally familiar with all of the work which is covered by Exhibit A-114, but, obviously, I am not intimately familiar with the smaller details of so vast a thing. But, in general, both as to the main classifications and as to the subclassifications, I am cognizant of the kind and character of work, and the purpose for which it is done. Viewing the work from the standpoint of the purpose for which it is done, I think I can break it down into a few general classifications.

[fol. 6575] There are a number of divisions, four or five. First, put into one class that work which the Department of Development and Research does to get together, put in form and present the information which is required by the operating companies properly to install, maintain and operate the plant which they use in the giving of telephone service. Particularly it is concerned with that kind of information as it relates to the newer things, the things which have been the result of research and development work and are about to go into general use in the telephone plants.

It has to do, second, with the studies concerned with the protection of telephone and telegraph plant, for example,

protection against inductive interferences from neighboring trolley wires or high-tension circuits, lightning, electrolysis, and various things which may destroy either the plant or the use of the plant if not properly handled. That kind of work is undertaken by the Department of Development and Research for the benefit of the operating companies, in order that they may have the best knowledge and the best standardized methods for coping with that sort of thing.

Then it has to do, as I mentioned, with the acquisition of fundamental knowledge applicable to the development of the electrical communication art. In connection with that we endeavor to keep thoroughly informed of the progress of scientific work and the progress of the communication art in other parts of the world, to the end that we may at all times have the best information on which to do our research and development work.

It has to do with the fundamental studies which are required to set the requirements for the development of new circuits or new arrangements of existing apparatus, in new combinations, for new purposes as they may arise in the associate companies, and of formulating the rules for their use.

Then it has to do with the work underlying the setting of requirements for entirely new things, where the general information which has been acquired is sufficient to make possible the creation of new things.

[fol. 6576] It relates to circuit and system designs and arrangements and combinations of things that exist, in new ways. It relates in part to work which is done and directed to a specific result, which, if successful, will result in the manufacture of telephone apparatus or material.

The figures that are shown on the sheets which have been received in evidence are confined to work of the character which I have just described there, which is ultimately charged to my department on the books of the company. There are a few exceptions to that in some of the years. I have already mentioned the patents and I think in some of the years there are some minor things. Scattered through these years, there are a few minor deductions, particularly as they relate (as I remember it) to services which were rendered by us for someone else, and were transferred on the books. In one case, I think it is for the year 1930, there was a considerable item which does not show in detail on this particular sheet; it amounted, as I remember it, to some-

thing like $260,000 or $261,000, which was charged to the Department of Development and Research for work done in the Laboratories for which the American Telephone and Telegraph Company had agreed to assume the cost, but which was not a proper charge against the Department of Development and Research. It was in the nature of this patent expense to which I have referred; it appeared on our books as in transit, because the Department of Development and Research is the one to whom the Laboratories renders its bills. I think that item is included in Exhibit A-114. I have had a careful examination of our records made for the purpose of eliminating that and all other charges that passed through our books, but which were not properly charged to my department. I have gone further and I satisfied myself that the charges which were reported to me as being charges which should be eliminated should have, in fact, been eliminated. I did this by checking the original records. The sheet marked for identification as Exhibit A-115 is the tabulation of these deductions.

(Which said exhibit, A-115, is offered in evidence. Ruling reserved.)

[fol. 6577] This $260,000 item, to which I referred a moment ago, appears on this sheet.

After the deductions shown on Exhibit A-115 are made, the figure in the last column to the right of that sheet correctly shows the expenses of my department for the classes of work that I have stated in connection with the development of the telephone art. It is the net amount obtained by deducting from the gross amounts charges which were transferred to other departments, because of specific things, and after deducting certain items which were not done for the benefit of the associate companies and Long Lines, the principal item among which is this item I have referred to of two hundred and sixty odd thousand dollars. The principal reason for the research that we carry on, of course, is to advance, improve and cheapen the cost of giving telephone service through the application of scientific knowledge to the betterment of the equipment and methods which we have available for giving that kind of service. It was and is our belief that out of the new fundamental knowledge which has been made available through research work in physics, chemistry and the other sciences, there is much that, when properly studied, examined and amplified,

and applied by competent men, is susceptible of many very material improvements in the giving of telephone and telegraph service in the items I have mentioned. The telephone art is most certainly not a static art. Up to the present, it has been one of the most rapidly moving arts and there is today.

In my opinion, there are reasons peculiar to the telephone industry, which do not obtain generally in other industries, why research such as we have done should be carried on. Because of the nature of the giving of telephone service, it does not have those elements of decreasing unit costs with increasing numbers of the units involved in growth, or has them to a lesser extent than is common in many industries. So, since the giving of telephone service in large metropolitan areas, or where there are large numbers of subscribers, is involved with more expensive costs [fol. 6578] than in a scattered or smaller community, it is only through the reduction in the unit costs themselves that we can hope to prevent an increase in the inherent cost of service as that service increases as regards the number of subscribers to be connected.

For an example of this, take the general situation which obtains when there is compared, we will say, the cost of giving service in a large area like the City of Chicago, and in a smaller area, say a city of ten thousand people. It might seem that the elements which in mass production make these unit costs go down should apply there, and that a city like Chicago should be a mass production affair. Actually, of course, there is substantially none of the elements of mass production as they appear in ordinary industry prevailing in the giving of local exchange service. The fact that the switching plant is very much larger means little, because every call which the telephone company is called upon to make is a custom-made job. Every day in this city, or in any city in the country, there are hundreds of thousands of connections being put up which have never been put up before and which in all probability never will be put up again.

All that the telephone company knows is that in a given exchange area they will get about so many calls a day and that they generally will be distributed in about thus and such fashion, but as to where they will originate or where they will terminate, it has very little advance knowledge; there are wide fluctuations in the number of calls from in-

dividual stations, and wider fluctuations in the destinations of those calls. So the telephone company has practically none of the possibilities which most mass production presents of making preliminary provision for the handling of those things. If the telephone company knew more definitely as to where these calls were going, they might make provision in advance and obtain some of the benefits of mass production.

Then there is another factor which is inherent in the giving of switching service, and is one which obtains whenever growth takes place and which works exactly in the reverse direction to the reduction of the cost. That is, when the [fol. 6579] number of subscribers increases beyond a certain point, and plant facilities have to be provided for giving service to additional subscribers, the unit costs in the case of some of the factors go up rather than down; they actually reverse in direction, and, so far as I know, they always tend in the same direction, upward rather than downward, although the size of their effect may vary under different conditions. I know of no case where these particular factors appear in the reverse direction.

An example which I have in mind of what happens when new subscribers are added and new facilities have to be made to take care of them has to do with the element of the switching plant, say in a local exchange area. The easiest illustration to understand would be one involving a simple manually operated switchboard (that is just by way of illustration, because the factors obtain by whatever means you do the switching). When you have a small area, all of the local connections are made by a single operator. In a small city you have one exchange and every local connection is completed by the operator who receives the order from the original subscriber. She has access to all the lines terminating in the exchange and one operator only is required as regards every connection, and no trunking plant. Now, because human beings have certain physical limitations and telephone operators are human beings, and their arms are only so long, there is a limit to the number of terminals that a single operator can reach. The standard in this country, using the type of plugs and jacks which we have in relays, is about ten thousand. Now, if you used smaller plugs and jacks, you could get more, but those bring in factors of increased maintenance and increased errors, so that for many years the standard in this country has been ten thousand.

Now, when the number of subscribers increases beyond ten thousand, with those limitations, it becomes necessary to connect a considerable number of the subscribers to an additional central office. That is, if we had a small city that had less than ten thousand subscribers, we would need only one central office and one operator to handle each call. [fol. 6580] Now, if the city grows so that there are fifteen or twenty thousand subscribers, we have to have more than one office. The first step, of course, would be to have two offices, and then for all of the calls which originated by subscribers in one office and were destined for subscribers in another office, you would have to involve two operators instead of one in the completion of the connection, and, in addition to that, you would have to have a type of plant which you do not have in the earlier case, namely, the interconnecting plant between the two offices. Each office would, in itself, be more complicated than the original office was, because it would have to have the equipment needed for handling this interoffice business.

The same factor obtains as the number of new offices are added. If the city grows to need three offices, you still have to have two operators involved in completing every trunk connection and then you have to have three groups of interconnecting trunks instead of one. Those interconnecting trunks may become a very important part of plant as the telephone plant grows.

I don't know how many offices there are in the City of Chicago, but taking a city with fifty central offices, if you had your service given as I have described it, with direct trunking between every central office and every other central office, so that only two operators were required, the number of trunk groups that would be required in that case would be found by multiplying the number of central offices by that number, less one, and deducting a half of it. That would be 1,225 separate trunk groups.

These trunk groups consist of pairs of insulated copper wires, in a city of the kind described; if a sufficient number of them are put inside of a lead sheath, they become telephone cables, and they are installed in underground conduit, or, in the outlying regions, in overhead cable. One of the problems of my department has been to find means to try and cut down the number of those interconnecting trunks. In many cases, that is accomplished for the more distant and [fol. 6581] particularly the smaller central offices, which are

likely to occur on the outlying fringes, by providing a third operator of some kind intermediate between the originating and the terminating operator, and handling the connection, not over a direct group of trunks from this office here to the office at the distant point over a separate group, but through this switching point. That decreases the amount of plant required, at the expense of increasing the handling of each individual call. It tends to decrease the amount of trunk plant, but increases the central office and operating cost. It enables the trunk group from one of these offices to be used for connection to many offices.

Where we have found means to diminish the effect of this increase in the trunk groups, we have not found any means to overcome it. I stated that, so far as I know, as regards this factor, it is always present and I don't know of a case where it has ever been reversed. The quantitative effect of these kinds of factors, where we have this peculiarity of the telephone business, of course, varies with different-sized cities and different locations and different conditions, but the effect is always apparently present.

"Q. Might it be said, then, Doctor, that the telephone business is, in a sense, a self-limiting business, and would be confined to smaller proportions if it had not been for the work of development and research which has continually substituted cheaper and more efficient means of doing the same thing?

"A. I think that is correct."

It is largely through the results of research and development on a large scale, which have produced cheaper unit plant, that we have been able to keep the inherent costs from rising tremendously with the increasing numbers of subscribers connected.

Some of the work which has been done by the Department of Development and Research, shown on Exhibit A-114, resulted in the manufacture of apparatus by the Western Electric. All the work which we have done, shown on these sheets, has not so resulted.

[fol. 6582] The first classification of the work of my department to which I referred, that is, the contact with the associate companies and instructing them in the operation of new and standardized apparatus, did not have anything to do with the manufacture of apparatus by the Western. Expense incurred under that general heading has to do with

the use of apparatus which they have, not with the manufacture of the apparatus. The expense incurred in connection with manufacture is precedent to that expense to which I have referred.

A very large part of that class of work which I referred to as the protection of our system from interference by electrical current of trolley lines and high-powered electric transmission lines has no connection whatever with the manufacture of apparatus. Some of it has some connection, particularly where it relates to protection from things like lightning; but where it relates (and this is a very large part of it) to the work which we do in connection with inductive interference or electrolysis, it has practically no connection at all with the manufacture of apparatus. I can say 95 per cent of our expense under that classification is directed to that kind of work. The work which has to do with circuits and system design has connection with the Western Electric Company to a considerable extent.

The class of work of a general nature which we have done in connection with fundamental research, may or may not have a connection with the Western Electric Company. A large part of it does not have any relationship to the manufacture of apparatus, but a considerable portion of it does, or is likely to. The other class of work which I have referred to, that is, work directed towards a specific result, has a direct relation to apparatus, either of Western Electric or somebody else's manufacture.

I think I could make an apportionment of the total expense of my department for each year shown on Exhibit A-114 among the beneficiaries of that work, which, in my judgment, would be a fair apportionment. Since practically [fol. 6583] all of our development and research department work is concerned with physical things and with the physical part of the associated companies and Long Lines plant, either directly or indirectly, rather than with operation costs or current costs of construction, the way I would make such an apportionment would be to take the total cost, as shown on these sheets, eliminate the items to which I have previously referred as being transferable or not properly chargeable to research and development (that is, the items shown on Exhibit A-115), and apportion the resulting amount (that is, the figure shown in A-115) to the beneficiaries in relation to the plant value of the telephone plants

of the several beneficiaries. Before making that apportionment among the operating companies, I think I would make an adjustment or deduction in recognition of the connection between the Western Electric Company and our work. This statement is based on the assumption that the Western Electric Company has customers other than the associated companies and the Long Lines for the work to which this expense pertains; that is, cable and telephone apparatus. If it had no other customers, I would not make any such allocation, because the plant to which I would allocate this thing is not concerned with the way in which the expense gets to the allocation point. If the Western Electric sold only to the associated companies and the Long Lines, they would be the ultimate beneficiaries of our work and I would take no account of the Western in such an allocation. Since, however, they do sell some of this equipment on the outside, it would seem to me, since I cannot, from the very nature of the items of this work, apportion it very accurately, item by item, I would assume that all of it was related to the Western Electric Company's business, and find out what proportion of the Western Electric business is in this non-Bell field, and get a factor of value which resides outside of the Bell System.

I have attempted to do that. The sheet marked for identification as Exhibit A-116 is the one on which I have attempted to do as I described. I succeeded as well as I [fol. 6584] could; I think I have made an exceedingly liberal allowance for the Western Electric Company, because I have assumed that all of our work has relation to the Western Electric Company, but, as I just testified, a good part of it does not have a relation to the Western. In using these figures, however, I have used the total expenditures of my department, because, as I just stated, it is rather difficult to say which amount, in money, did not in any way contribute to Western Electric manufacture.

This exhibit (A-116) shows for each year of the period 1923 to 1931, inclusive, the Western Electric's sales divided between telephone apparatus and lead covered cable and between Bell customers and non-Bell customers. Column 1 shows the division for the Bell customers, and column 2 for the non-Bell customers. Those two columns are merely the volume of sales measured in dollars, that is, lead covered cable and telephone apparatus. Column 3 is the per-

centage which column 2 is of the total. Column 4 is the expenses of the Department of Development and Research, as obtained from the two exhibits which I have just put in evidence; specifically they are the figures shown on the right hand column of Exhibit A-115, which is the net result after deducting from the cost of the preceding exhibit (A-114) the transfer charges and certain special charges which are not shown.

The fifth column is the amount obtained from the fourth column by applying the percentage figures of column 3.

(Which said document, marked for identification as Plaintiff's Exhibit A-116, was offered in evidence. Right to object and ruling thereon reserved.)

I obtained the figures in columns 1 and 2 from the Western Electric Company.

For determining the maximum reduction from the sales of the Western Electric Company which I referred to, I would prorate the net, after this deduction, on the basis of the plant investments of the recipients. That would be an allocation to the Illinois Bell Company on the basis of its plant investment, and if you were desirous of determining the proper allocation to the Chicago area of the Illinois Bell, [fol. 6585] I would carry it a step further and take the plant investment of the Illinois Bell in the Chicago area. I have done that; my calculations to that end are shown on the sheet marked for identification as Plaintiff's Exhibit A-117. The D. and R. expenses under the column headed 1 on this exhibit come from the preceding exhibits; specifically from the last column of A-115.

The figures in column 2 (of Exhibit A-117) came from column 5 of A-116. Column 3 is merely the difference between column 1 and column 2. Column 4 is the percentages which were given to me by Mr. Crunden and appeared upon the sheets which were offered by him in evidence this morning; they are the same figures as appear in the last column of Exhibit A-113. The last column on Exhibit A-117 is merely the multiplication of column 3 by the percentage figures appearing in column 4.

In my opinion, that method gives a fair share and no more than a fair share of the expenses of my department which are allocable to the Chicago area of the Illinois Bell

Telephone Company in each of the years 1923 to 1931, inclusive.

(Exhibit A-117 offered in evidence by plaintiff. Ruling reserved.)

I could take each classification of expense as shown on my sheets heretofore introduced in evidence and make a pro rate of the expense separately for each classification, but I do not think that it would be as accurate or as fair a pro rate as the one I have just testified to. I believe that the general method which I have followed, as shown on Exhiibt A-117, is better than an individual pro rate of the separate items and expenses, for a number of reasons. It deals with total expense of the Department of Development and Research, which, as I have already stated, in the last analysis relates to plant, and since, from its very nature, it deals with the future and it cannot be accurately determined as to the places in which it will appear in the plant of the Company, any attempt to prorate that future work against existing factors must of necessity deal with rather general [fol. 6586] yardsticks. When you attempt to apply a pro rate by these divisions shown in the expense analysis by classes of work, large parts of the benefits derived from the expenses in many of the classifications appear under items which you would normally associate with other classes of work; that is particularly true with regard to the items having to do with more fundamental things, and, consequently, the things which are still remote from direct application, so while such a pro rate by classification of work can be made and while I have done it, I consider that if an allocation is to be made the way in which it has been done in Exhibit A-117 is the best that I know of to do it.

For an example of what I have just said about work on certain classifications affecting portions of the plant that would be found in many other classifications, I will take an item upon which we have spent a very considerable amount of money over a period of years: the sub-classification vacuum tubes. The development of vacuum tubes appears under general classification 7 of these later years. Well, vacuum tubes, in their direct or indirect values, appear in practically every classification throughout the entire list. They appear either as parts of apparatus or as

the necessary tools by which these pieces of apparatus were constructed.

After the deduction of the items shown on Exhibit A-115, the expenditures shown on Exhibit A-114 have to no extent whatever been incurred in connection with work of no value to the associated companies, considered separately and apart from the Long Lines Department of the American Telephone and Telegraph Company. To a very considerable extent, the expenditures shown on Exhibit A-114 have been incurred in connection with work which has been and will be of little or no value to the Long Lines Department of the American Telephone and Telegraph Company. This is because some of the classifications under which the expense is charged refer to classes of plant which the Long Lines does not have at all, or, in other cases, has in very insignificant amount. In other classifications, while the [fol. 6587] Long Lines does have some of the general type of plant covered by the classification, its amount is small in comparison with the amount in the plants of the associated companies.

The plant of the Long Lines Department, in the main, consists of long distance toll lines, which connect the territories of the various associated companies and over which is handled the business originating in the area of one associated company and destined for subscribers in another. In general, the circuits used are long. The associated companies have similar plant, in all respects, except as to length; in general, the Long Lines circuits are longer than the circuits of the associated companies. That is, our lines from New York to San Francisco are longer than any of the lines of the associated companies.

Many of the associated companies have lines as long as 50 or 100 miles. These lines are, in all respects, similar to the comparable lines of the Long Lines Department. They involve the same general problems and, in general, are constructed in the same general manner. The Long Lines also has a certain amount of switching machinery, which is similar in character to the corresponding machinery employed by the associate companies wherever that same kind of telephone service is given by the associate companies.

In addition to the character of plant that the Long Lines has, the local companies have other kinds of plant. For example, the associate companies have a large amount of

local exchange switching plant and the Long Lines plant has no local exchange switching. The associated companies have a large amount of subscriber's loop and station plant, but the Long Lines has none of that kind of plant, because it has no subscribers. Considered from the basis of use, the associated companies have a large volume of short toll business similar, say, to that between Chicago and its outlying suburbs. Specifically, that type of suburban traffic involves, or may involve, a different application of the same general methods employed in the longer business. The associated companies have their local tolls, and, in addition, of course, have the more distant toll service within their areas, [fol. 6588] which is, in all respects, similar to much of the stuff which the Long Lines does, and then they have this local exchange service, which the Long Lines does not have at all.

The volume of the local exchange business is many hundred times greater than the total business of the Long Lines. The Long Lines handles no business under forty miles; it has no subscribers, and only carries messages for the subscribers of the local companies.

I have made an allocation on the basis of the separate items of expense shown on my sheets. The sheet marked for identification as Plaintiff's Exhibit A-118 develops such allocation.

The figures shown in the first column to the left on these sheets were obtained from Exhibit A-114. Those figures are identical, in all respects, with the figures shown on the sheet marked Exhibit A-114, except that the totals shown have taken account of certain deductions and transfers of the kind previously referred to and shown on Exhibit A-115. For example, on the sheet for the year 1930 it will be noted that at the bottom of the second sheet of that exhibit there is an explanation of certain single-starred items; this happens to be the one with that $260,000 deduction. Then there are certain items appearing above double-starred notations, which are transfer charges to other departments and have been taken account of in the total at the bottom. The figures appearing in column 1 are identical with the figures in A-114 and I have taken account of these deductions which are shown on Exhibit A-115 individually on the separate pages by starred references at the bottom of the sheet. They are, I think, identical, except as to total, which take

account of those deductions and allocations. The starred items at the bottom show the reasons for the difference between this total and the total on 114.

There are on the next column to the right, headed "Per cent Long Lines is of total", a number of percentage figures followed by some legend in each case. For example, take [fol. 6589] the first group, for the year 1930, central office systems and apparatus; there I have set down the words "Central office equipment." By that I mean that when I attempted to allocate the expense under this classification as between the Long Lines and the associated companies, it was my judgment that the best factor which could be taken for that allocation was the investment in central office equipment. Obviously, it had little or no connection with outside plant or with sub-station plant, and while there is a tremendous amount of inter-relationship between the sub-items of the general classification, the whole of that classification pertains essentially to central office equipment, so I determined as the basis for prorating that first division of our expense shown on the sheet for 1930, the relative amount of central office equipment in Long Lines as compared to that in all the associated companies, including the Long Lines. It would seem to me obvious that I could not apply the same factor of total plant investment used in the other attempt to allocate in a case where so much of the plant was not involved.

I will now take up in a little detail the work shown on this exhibit.

Sub-class 101 represents the expense incurred for the development work of the Department of Development and Research in connection with local manual equipment and circuits. That is, the fundamental work, or the work previously described as that which we do in connection with advice to the associate companies on new things or on the acquisition of new knowledge, where it relates to the local plant. The Long Lines Department of the American Telephone and Telegraph Company does not furnish any of that service which I have referred to, and does not own or operate any plant of that character.

The next item, manual apparatus, has to do with our expense in the Department of Development and Research of the same general character as relates to apparatus which

is used in connection with manually operated switchboards. The Long Lines use, own or operate some of that class of apparatus, because that kind of apparatus is used in all [fol. 6590] kinds of manually operated switchboards. It is to a very small extent as compared with the local companies, however, because switching, which is a major problem with the associate companies, is a relatively minor problem with the Long Lines; that is, switching is the work done in connection with the handling of calls, and, as I have already stated, the local companies in their local work alone handle several hundred times as many calls as the total calls of the Long Lines.

The next item, panel equipment and circuits, 103, relates to the same general character of work in the field of panel machine switching equipment and circuits. The Long Lines does not own, operate or use any panel equipment whatever. The next item, 104, is panel apparatus. It corresponds to 102, and relates to the apparatus side of panel machine switching. Of course, it correlates with the item 103. The Long Lines does not own, operate or use in any way any of that class of apparatus.

The next item, 105, is the corresponding expense for the same purposes in connection with step-by-step machine switching, which is used by the local companies, and none is used by the Long Lines, that I know of. The same is true of 106 and 107.

108, toll equipment and circuits, applies to the same general character of work previously described and covers all toll equipment and circuits for both Long Lines and the associate companies, and both long and short toll circuits. The amount of that equipment in the local companies is many times the amount in the Long Lines.

The next item is P. B. X. equipment and circuits, which occur solely in the plants of the associate companies.

The next item, power equipment, is of the same general character, and relates to the problems of power supply in exchanges and elsewhere in the telephone plant. That is used by both the Long Lines and the associate companies, but relatively, of course, a great deal more is used by the associate companies than by the Long Lines. The associate companies' power equipment problem, because of the vaster [fol. 6591] size of their unit, is, on the whole, a more exacting and larger requirement.

The next item, testing and maintenance equipment and apparatus, applies everywhere where central office equipment is used.

The next item, engineering on equipment orders, is just an insignificant thing; I do not know just what that is. Fundamental studies (A. T. & T. Co. only) are just what the name implies; they are fundamental considerations concerned with any of the problems of switching.

The next item, miscellaneous, covers, as I remember it, the odds and ends of things which cannot be easily differentiated between, but which all come under the problem of the classification of central office systems and apparatus. I think under this fundamental studies item are such things as the mathematical studies which are involved in probability studies, which have to be made in order to determine how many pieces of equipment and how many trunks have to be put in, in order that not more than a given number of lines will be found busy; and things of that kind.

After fundamental studies, there appears on this sheet, in brackets, "A. T. & T. Company only". That means that that was expense incurred only within the American Telephone and Telegraph Company, and while the classification might appear on the uniform classification in the Laboratories, there was no billing from the Laboratories. That designation has been there, I think, for a considerable time, and it is barely possible that some slight billings may be found in recent years from the Laboratories under that, but originally it was a classification appearing in which the expense was incurred only in the American Telephone and Telegraph Company Department of Development and Research. That is true with regard to all the items on these sheets where the same legend appears.

In view of all that I have said here, I lumped together all of the expenses of that class (central office systems and apparatus) and applied to it the percentage of central office equipment of the Long Lines as compared to the total in [fol. 6592] the system. I think that procedure gives a fair and reasonable allocation of that work, although my feeling is that, if anything, it allocates somewhat too much of this cost against the Long Lines. I do not think that I have allocated any other items on these sheets on the same basis as central office equipment.

The next classification on the sheet is sub-station equipment. I have allocated that wholly to the account of the associate companies, because the Long Lines has no plant of that kind.

The next classification, No. 3, is outside plant. Since outside plant involves work connected with the line portion of the Telephone Company's plant, I have allocated it on the basis of the relative investments in exchange and toll line plant.

For the next item, transmitters, receivers and induction coils, I have allocated nothing to the benefit of the Long Lines, because they have no transmitters and receivers and only an insignificant investment in induction coils.

Skipping down to classification No. 8, other communication systems and apparatus; that relates to things which are not primarily telephony or telegraphy, as used by the units of the Bell System. It is indicated fairly there by the subclassifications. In an attempt to apportion that between the several units, since it is the type of thing which may appear anywhere, and since it has to do with the electrical transmission portion of the plant and does not apply to land or buildings, it seemed that the fairest thing to do was to take the ratio of plant investment less the investment in land and buildings, and that is what I have done. The last item on the first sheet of 1930 is lead covered cable. That follows the same rule as classification 3, outside plant, and for the same reason. That is, outside plant appears both in the plant of the Long Lines and of the associate companies, and I have apportioned it on the basis of the relative outside plants of those companies.

The next item, item 10, is submarine cable. That is a very general classification. Much of the expense incurred has not found any considerable application in plant anywhere. [fol. 6593] It is difficult to know where it is going to occur, but it seems clear, as far as one can see ahead, that the benefits are generally applicable, so that the only way I know of dividing that is to take the ratio of plant in service.

Classification 11, materials and processes, relates to all sorts of things which apply to the parts of the plant, less land and buildings, everywhere; studies having to do with the paint finishes and matters which are of general concern in the electrical portion of the Telephone Company's plant are involved, so I have allocated that on the ratio of plant in service, less land and buildings.

The same thing with regard to 12, fundamental studies applying to communication; they are of general application and affect, or may affect, all parts of the electrical portion of the plant. That is comparatively small for the year 1930 after the deduction of the items that I have referred to and that are starred at the bottom of the page. It is small in 1930, but it is large in the next year apparently. The titles of the sub-classifications give a fair picture of where a considerable amount of our expense has been incurred. The telephone quality studies are fundamental studies designed not only to find out why deficiencies in telephone quality now exist, but how to build plant in the future which will have better quality characteristics; to get the basic knowledge of speech and hearing and transmission which will give for higher quality. The transmission theory classification has to do largely with mathematical considerations of the transmission of high frequency current and complex high frequency current over all kinds of structures; it affects all parts of the plant. There are numerous relatively small fundamental studies which come under the classification general here, but are not classified by separate divisions.

I have not allocated the next item, patent, because, as I have testified, that is transferred and I have excluded it.

The next item, No. 15, is rate case testimony. I have allocated that entirely to the associated companies; the Long Lines have had no rate cases, or at least none in which we have participated in any way. This study is merely for [fol. 6594] the purpose of attempting to allocate the value of this expense of ours among the beneficiaries, and no billing of this kind has been made.

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The next classification, No. 16, is interference prevention and protection. The work carried on under that classification is largely as indicated in the sub-classifications, and principally under sub-classifications .02, .03 and .05, which have to do with fundamental studies looking to the development of methods for protecting telephone plant against the deleterious effects of inductive interference disturbances from neighboring power or railway circuits, or protecting them against the deleterious effects of electrolytic damage in the case of underground cables, from stray currents

which flow off from them. It involves, principally, studies in the field and studies in co-operation with the utilities which produce this interfering current, to the end that ways and means may be found for eliminating or reducing the deleterious effects. In addition to that, there is a considerable amount of work which is done and charged under sub-classification .01, which has to do with the negotiations side of this co-operative work, looking to the standardization of rules for joint use, and for the proper construction of plant, both in our telephone business and the plants of the interfering companies.

For the apportionment of that work, I have selected the basis of exchange and toll line investment, because, in the main, that work is all applicable to that part of our telephone business. The next item, No. 17, is miscellaneous. That has to do with a large amount of miscellaneous fundamental work connected with all phases of the physical plant used in the giving of telephone and telegraph service but of such a character either that the individual items are relatively small in amount or of a character which involves work under a number of other classifications, and they are consequently lumped together under this miscellaneous item. I have dealt with that as allocable on the basis of relative investments of all plant in service, less land and buildings.

[fol. 6595] The next item, No. 19, is engineering services. I have not allocated those expenses, because they have been passed on to some other department.

The expenditures for all other years were treated by me in the same manner for all of those years as they were treated in 1930, about which I have been specifically testifying, and, in detail, were treated specifically the same for classification subsequent to 1926, when the expenses, of course, were kept in the form of the sheet at which we have just been looking. That includes the year 1926 and subsequent years. Throughout that period, I have applied the same basis of allocation to each of the divisions of work shown on the sheets of Exhibit A-114 as I have already testified.

As the charts show, the general classification and the sub-classifications for the years 1923 to 1925, both inclusive, are somewhat different in designation and somewhat different in arrangement, although the character of all of the work done is the same throughout. Specifically, take the thing which

appears as classification 1 in the later years; in the first three years that appears as three main classifications: local central office equipment, toll central office equipment, and private branch exchanges. Those are the three classifications on the sheets for the years 1923 to 1925, inclusive, and all three of those classifications are lumped together and appear under classification 1 on the sheets for 1926 to 1931, inclusive. By taking those three classifications together, you get the same class of work that I have dealt with in describing my pro rate of the first subdivision in the year 1930, and I have applied the same basis of pro rate as was indicated to those three classifications.

The next classification of the first three years, sub-station equipment, is divided and appears in the later years as two classifications, 2 and 4, sub-station equipment, and transmitters, receivers and induction coils. I have applied the same basis of allocation for this consolidated classification of the earlier years. The classifications for the first three years are such that I have been able to proceed in the same manner and pro rate the same class of work on the same [fol. 6596] basis which I used in subsequent years, and the figures that are set down in the columns on these sheets show the same pro rate in effect.

In those columns where there are set forth bases such as I have mentioned, like outside plant, toll and exchange lines, and things of that kind, there are percentage figures in connection with them. I did not develop those percentage figures. I got them from Mr. Crunden; from the exhibits that he put in yesterday. In classifications 5, 6 and 7, I applied one percentage to these three classes combined, and did not treat them separately. I proceeded this way because from the nature and character of the work under those classifications, I was not able to develop any individual classifications of allocation for them, or if I had segregated them, they would have all had the same classification as I have shown for the consolidated. The reason for that is that in these classifications (these three classifications, more than in most of the other classifications), the character of the work is peculiarly fundamental, and is farther in advance of current application than it is in most of the other classifications, and consequently, it is not only extremely difficult to find any current yardstick by which to measure a future use, but it is the fact that a large part of the work is done under these classifications finds

it- application, or may find its application in practically all of the other classifications. So I have treated these three as a combined classification in this attempt to allocate, although the detailed story with regard to each of these classifications varies a little bit, but, in general, the net result is the same, namely, that they are all classes of general application of fundamental research and development work.

"Q. Well now, with respect to all the classifications on the 1930 sheets, except 5, 6 and 7, have you made your allocations substantially on the basis of the use of the effects of your work in the year in question?

"Mr. Haight: That is objected to, a general conclusion of that sort, and incidentally, it does not correspond at all with the general facts put forth as specific facts by the witness.

[fol. 6597] "Why a conclusion of that sort should go into the record, I do not know.

"There is no foundation at all, also, for putting the word 'use' in there, not the slightest.

"Judge Wilkerson: I suppose it calls for the conclusion of the witness, to tell how he——

"Mr. Blackman: He is an expert sir. It is not a conclusion. I think perhaps the question may be somewhat objectionable on the ground that it is leading.

"Judge Wilkerson: Yes.

"Mr. Blackman: But that objection has not yet been made.

"Judge Wilkerson: Let the witness go ahead and tell how he made that up.

"Mr. Haight: The fact that it is leading—we do not object to it on that account, but incidentally, also, what is the meaning of the phrase 'use of the effects'?

"Judge Wilkerson: Well, explain that phrase, and then answer the question."

The basis of the allocation in all of these cases is as indicated on the sheets. It is plant in service less land and buildings, or plant, or what-not, which seemed to me the best basis, as regards these separate classifications, for an allocation. Much of the work in all of the classifications has, in its very nature, no present application, and consequently, since I am not claivoyant as to the exact places in which this will appear in the future, I have

been forced to take the best current application which is available to me under that general basis, which are the ratios as they exist in the plant of today. They are ratios of investment in these several plant items as between the Long Lines and the associate companies; it seems to me, on the assumption that in the years ahead, when much of this work will find its place in the plant of the Bell System, the general ratios will not change very much, that is a fair allocation. Certainly the fairest one that I can make, because I have no ratios of future conditions.

"Q. Well, taking the year 1923, say, in your opinion do the allocations there allocate your expense on the basis of [fol. 6598] the use that was then being made in the various plants in the Bell System, of that work——

"Mr. Haight: I object to the question.

"Mr. Blackman (continuing): —or developments generally?

"Mr. Haight: The question obviously is right in the teeth of the last answer of the witness.

"Judge Wilkerson: Well, let him tell it.

"Mr. Blackman: That is not leading, sir.

"Judge Wilkerson: Let him state it in his own way.

"Mr. Haight: I have no objection to that.

"Judge Wilkerson: State in your own way how you made it up, now.

"The Witness: Well——

"Judge Wilkerson: He has directed your attention to the subject. Now state it in your own way.

"Mr. Haight: The witness says, 'There is no use; consequently, I have to make a guess', and thereupon counsel says, 'Tell us the allocation made on the basis of use.'

"Mr. Blackman: That is about as——

"Mr. Haight: If that is logic, I do not understand it.

"Mr. Blackman: You do not understand it at all; that is the difficulty.

"Mr. Haight: Of course, I do not.

"Judge Wilkerson: He says he makes the allocation on the basis of the condition as he finds it now in the plant, does he not?

"Mr. Blackman: Yes, that is it.

"Judge Wilkerson: And in that sense you do not mean, on the basis of the use, present use of the things which you are allocating.

"Mr. Haight: That is it.

"Mr. Blackman: That is what I wanted the witness——

"Mr. Haight (continuing): Of course, he cannot mean that.

"Mr. Blackman: Let me put it this way; I will put another question.

"Q. Doctor, when you say——

"Judge Wilkerson: You say, they are not in use now.

[fol. 6599] "Mr. Blackman: Your Honor, most of this stuff is used now, but he said he could not look into the future as to this and determine the relative future use.

"Judge Wilkerson: Now is there a serious difference here?

"Mr. Goldstein: It makes a difference in the whole thing.

"Judge Wilkerson: Maybe you had better give them the difference, rather than spend the time on it. I do not know. I think I understand what you mean, and I understand the basis of Mr. Haight's objection. After all, it comes down to some disagreement as to the meaning of words.

"Mr. Blackman: Yes. Well, I would like to have that clear.

"Judge Wilkerson: Apparently Mr. Haight thinks you have used the word 'use' in a double sense; is that it?

"Mr. Haight: In part.

"Judge Wilkerson: That is. you have used it in one way in your question, and the witness has used it another way in his answer.

"Mr. Blackman: Well, sir——

"Judge Wilkerson: That seems to be the difficulty.

"Mr. Blackman: We can clear that up.

"Judge Wilkerson: Yes, clear that up.

"Mr. Blackman:

"Q. When you said, Doctor, that you have based your allocations for each year on the conditions as you found them in that year, what did you mean by that?"

I think just what I stated in the explanation just preceding. Now, it is probably true for the 10 years back that if one could make the very formidable analysis which would be required of the expenditures which were made in the year 1923, they might have developed a slightly different application from what we foresaw for them in 1923. But, in my

judgment, in looking over these figures, the basis of allocation is substantially correct for all of the years, based on the conditions of relative plant investments in those years, that is, the plant investments of the Long Lines and the associate companies in telephone and telegraph plant of the various classes indicated in this allocation.

[fol. 6600] Taking this specific class, the central office equipment, I have allocated that in the year 1930 and in the year 1923 on basis of the relative plant investments of the Long Lines and associate companies in that class of plant. I have allocated the work shown in that period on the basis of the relative amount of plant of the kind stated opposite our expenditures as they existed in that year in the relative plant. I did this because it seemed to me that since this work in each of these years, and at all times, is work of very general application which finds its field of use, or may find its field of use almost anywhere in the plant, this method of allocation is the fairest if you attempt to try and divide our fundamental research and development work by these separate classifications. I have already indicated that I think the best method of allocation is the method which I originally used, of dividing the total net expense for each year against the total plant in service ratios.

Among the three classes that I have mentioned last, that is, 5, 6 and 7, radio appears. In the period 1910 to 1931, inclusive, that is 22 years, the total charge for work in this classification of the Department of Development and Research (that is, radio and related subjects) has been approximately $11,500,000; and for the period of these charts, 1923 to 1931, inclusive, it has been approximately $9,600,000. In other words, the larger proportion of our total expenditures over the past 22 years has been in the period 1923 to 1931, inclusive. During that period the expenditures represented by this classification were, to my recollection, less than one-fifth of our total development and research expenses. On the basis on which I arrived at the $1.89 figure yesterday of the average expenditure over the period as applied to the average investment in plant during that same period per thousand dollars of plant, this would amount to a little less than one-fifth of the $1.89, so that it would be about 36 cents. The average expenditure over that period would then be about 36 cents per thousand dollars of average total plant investment.

Radio is now used in the Bell System to a very limited [fol. 6601] extent. Practically the entire use of radio in the Bell System is in the trans-oceanic and ship-to-shore services, which are furnished by the Long Lines Department. There is a small incidental use, possibly a growing use of it, in the plants of the associated companies, three or four of which have in recent years established radio ship-to-shore for harbor craft, installations to give telephone service to ships in the neighborhood of harbors.

The Long Lines division has never run its various radio services at other than a loss, and they are now being run at a loss; so far as I can see, all of these services are destined to be run at a substantial loss for a considerable period of time ahead. Each individual one of the services has been run at a loss continuously up to the present time.

As of January 1, 1932, the Long Lines' investment in radio plant, not including its investment in any wire connecting lines, but purely its investment in the radio plants themselves, was approximately $5,000,000. At that time, January, 1932, the rate of loss which the Long Lines division was incurring in connection with those services was approximately $600,000 per year. At the present time, because of increased investment in the extension of these plants and decreased business over them, I assume that that figure would be found to be considerably higher. However, it is at least $600,000 per year. In figuring the loss which I have referred to, no return on investment was included.

These services were begun, continued and extended because it was felt that this type of service, which extended the facilities for telephonic communication to include connection to telephone systems in other continents or to telephone stations on ships, was of advantage to the associate companies and their subscribers.

The radio services that I have referred to do not, in my opinion, measures the advantages which have come from our expenditures in connection with research work in the field of radio.

Our first investigations in the field of radio commenced in a small way very shortly after the Marconi experiments of [fol. 6602] the late '90s developed the fact that radio, that is space conduction of electrical energy, had the possibility of giving distance communication, telegraphic communication without the use of inter-connecting wires. Those experi-

ments opened up an entirely new field of possible development of electrical communication. However, our interest was not very large in those very early years, because the art was very new, and very crude, and seemed very distant from any of our immediate problems. As a matter of fact, we did not begin to do anything very substantial in the way of research and development for 10 or 12 years after the Marconi experiments, because of this condition to which I have just referred.

But when the radio art, itself, still wholly in the telegraphic field, had developed the instrumentalities, or the beginnings of instrumentalities, which indicated the possibility of telephony carried on by those means, it became a very important matter for us, because, it being an entirely new kind of transmission from any which had heretofore been used and being in a field in which very little was known and for which very much was claimed, it was of the utmost importance to know not only all that could be known about it and its possibilities, but for ourselves to be in a position to make use of that knowledge, if, as and when the art developed to a point where it was a practical thing. Very great claims were made at that time, and have been made since, and are still being made for the influence which this art is likely to have in connection with the whole field of telephone and telegraph communication. The nature of these claims, their widespread character, and the fact that the radio art had possibilities, and a very great uncertainty as to what its future might or might not be if the claims made for it were substantiated, as a result of further research and development work, it obviously would have a wide bearing on the business of any organizations in the field of telephony or telegraphy.

Further than that, it was perfectly clear that since it was a new art, involving the same general kinds of considera- [fol. 6603] tions that underlie all electrical transmission for telephony or telegraphy, there was grave danger that research and development work would produce patentable inventions of such broad scope as to be controlling in all fields of electrical communication. There was, therefore, every reason for us to be at all times in the fore-front of knowledge concerning the possibilities and limitations which inhered in this new field. And in connection with the matter of patents which might arise out of the radio work, but which would have a broad application in the field of all

communication, it was equally clear that if such patents did develop in the hands of outside interests, they might very seriously jeopardize the busines of all of the Bell System, including all of its associate companies, because from the very nature of the patent property, the rights under those patents, or to use those patents might not be obtainable for any monetary payment.

In matters of this kind where rights under fundamental or controlling patents are desired, in most cases the best way in which to acquire those rights is for the party seeking to acquire them to be himself in a strong technical and patent position, because by that process he may be in a position to have a trading situation under patents which forces the availability of the rights he wants.

In the very early years of the period which I have referred to, say from 1910 or along about 1910, we had no general information that any other large companies were actively engaged in prosecuting research work in the field of radio. But we did know that substantial companies and very able people all over the world were operating to develop this new art, and out of that work which was, of course, very early in the stage of the development of this art, very controlling patents might arise. A little bit later we had knowledge that some of the large electrical organizations, not only in this country but abroad, and in this country particularly, were actually engaged in the development of that art, or portions of that art. And in pursuance of our desire to protect, and not only protect the existing property of the operating companies, but, likewise, to put them in a position to make use of anything which grew [fol. 6604] out of this art, we embarked early on a large program of research and development, as early in the development of the radio art as it became clear that there was some possibility of its use in the field of telephony.

The business of the associate companies is the business of giving telephone and telegraph communication service; it is not the business of dealing with a particular way of doing that sort of thing. What we had feared might happen did actually happen, and we found ourselves about 1919 or 1920 in the position where not only the growth of the telephone business of the associate companies, but possibly its very existence, was tied up in the patent property of outside interests.

As a matter of fact, when that situation developed (and

developed at a time when we ourselves had a very strong patent position), it was actually found to be impossible to secure these controlling rights for a sum of money which was far greater than all that we had ever spent on radio development; but because we had ourselves a strong patent and technical position which controlled some of the things which the owners of these outside patents needed in their business, we were able to obtain the rights which were required for the development of the telephone business of the associated companies and the Long Lines without the payment of money.

My recollection is that these arrangements were effected by two cross license contracts, the first of which I think was about 1920, and the second about 1924. This cross licensing involved among others the General Electric, the Westinghouse Electric & Manufacturing Company, the Radio Corporation, and the United Fruit Company, which at that time had in connection with its shipping business developed a very substantial position in the radio field.

Broadly, what we got under that agreement was complete licenses in the field of the business of the associate companies and the Long Lines as the givers of telephone and telegraph service, to utilize all of the existing and prospective patents of this group. When I speak of prospective [fol. 6605] patents, I mean any patents that they might thereafter develop, during the term of these cross license agreements.

To get that we gave up rights under our existing and prospective patents in fields other than the telephone and telegraph communication business, and we gave up substantially all rights with regard to certain kinds of telephone transmission; notably, substantially all of the rights with regard to one-way reception, such as is employed in news, music and entertainment broadcast distribution, and rights in the giving of two-way radio telegraph service for public use. Those rights which we gave up were of very great value.

Since we made those arrangements and obtained full opportunity for our Company to operate its telephone business under all these patents, we have continued to spend money on the investigation of the radio field. We have done this for identically the same reason, among other things, that had impelled us before that time, because while we had safeguarded the situation as regards this particular group,

there was an increasing development going on, not only here, but abroad, in this field of radio, among groups and individuals who were not involved in these cross license agreements. While the radio art had developed very considerably since the Marconi days, it was still and is still a new art, and there are still possibilities of very substantial controlling inventions possible of being made, and we felt and feel that we must continue to do this kind of work in large measure as long as that condition exists, in order to insure the safety of the business of the associate companies and the Long Lines, to permit them to develop their business with the freedom to use whatever instrumentalities and whatever methods are most desirable at any given time.

There are other or additional reasons for the continuation of this work. Some of these are: among other things, our work in this field, in the field of this classification to which you are referring, and in the two adjoining classifications, 5 and 7, has indicated that many of the instrumentalities which first appeared and were worked on because they had a relation to radio, are things which have a broad [fol. 6606] application in all communication development work, either directly or incidentally. Also many of the techniques which were developed in connection with radio development, and in the development of the arts of these other two classifications, have application entirely outside the field of their original use.

The first important or fundamental objections that were considered as making radio not usable in the telephone field were:

Going back to the very early days, the years immediately following Marconi's work, when the whole radio telegraph art was essentially what is termed the spark transmission type, the very type of radio in those years was such as to preclude its use as a vehicle for telephone communication. At a somewhat later time, and particularly after the coming into the art of the vacuum tube, when it became possible to develop high frequency currents of uniform characteristics which could be modulated and amplified, and when radio telephony appeared, or the beginnings of radio telephony appeared as a possibility, there were still some very inherent obstacles to any considerable use of radio as a means of telephony.

Among those was the fact, first, that at that time practically all of the energy which was radiated from the tra

mitting antennae spread out in all directions, with the result that only a very small fraction of the energy could be directed toward the point where you wanted to receive it. In other words, large powers for insignificant results were involved. That was particularly true because at that time the art was one involving relatively long wave lengths, and the only way that you could conceivably direct that energy was with enormous structures.

Likewise, at that time, because these wave lengths were long, the number of channels which might be available for this service were very limited in extent, and indicated that if the art never went any further than that, in the very nature of things, there could only be a very small usage.

Also the element of secrecy or privacy was absent. The [fol. 6607] radio transmission was essentially non-secret. The very fact which makes radio broadcasting what it is was a deterrent to the use of radio in the field of ordinary telephone service. Likewise the radio transmission in this particular range of frequencies is very subject to interference from natural causes, static disturbances, which would tend to make a circuit, any telephone circuit, a very uncertain and very undesirable kind of circuit. That static interruption characteristic is still present in that range, but has been minimized in recent years somewhat by the increased knowledge which we have of the directional situation, of the possibility of building directional receiving antennae so that we have reduced the amount of static interference by eliminating substantially the interference which comes from all except one direction.

The inventions of De Forest removed some of the fundamental and seemingly insurmountable obstacles to the use of radio in the telephone art. Since De Forest's invention of the so-called vacuum tube, or audion, which completely revolutionized the whole art of radio, very substantial progress has been made, not only by us but by others, in overcoming the objections of lack of secrecy, lack of directional control, or lack of power to direct the waves and interference by static.

We have taken a very major part in that development, and that development, in general, has been in these directions: the spectrum, the frequency spectrum of the days preceding De Forest's work, the one to which I refer, which

limited the number of possible channels to a few in the longer wave lengths, has been very much broadened in the direction of making very much shorter waves utilizable.

Those short waves are in actual commercial use at the present time by the Bell System in our services to Europe and elsewhere.

Now, there has also been, of course, an enormous development in the perfection and cheapening of the instrumentalities which are used in connection with radio, either for the production of the signals or their reception. And, in connection with those transmitting and receiving instrumental- [fol. 6608] ities, we have learned a great deal about how to direct the energy generally in the direction in which we want it to go, and to pick it up.

The effect of very materially shortening the wave length, or conversely, increasing the frequency, has been to make possible very much smaller transmitting and receiving station structures. In the art of the earlier period to which I have referred, the wave lengths which were used were thousands of meters or thousands of feet long. The wave lengths of the art to which I have just referred as being in use in the Bell plant largely are on the order of a few feet, and because they are very much shorter, the structures which you use in connection with your transmitting or receiving antennae are relatively small things, and are capable of radiating the energy substantially in the direction in which you want it to go rather than having it broadcast all over the 360 degrees.

Also the static effects which were so objectionable in the longer wave lengths area, and which are the things which we commonly witness in our radio receiving sets, are substantially absent in those things. Another kind of static trouble, or another kind of atmospheric trouble is there, but that kind of trouble does not exist elsewhere.

The thing that I have referred to here as the ability to more or less direct the energy in the direction in which you want it to go, with relatively small structures, is a commonly known problem of any wave transmission in geometrical optics; it is simply the statement that the shorter the wave length which you employ, the smaller the structure can be, to get a definite kind of result, to get a beamlike transmission. Every pushing down of the length of the waves which you can employ, or what is the same thing, the broadening of the spectrum at the shorter wave length end, tends to do

two things. First, it tends to increase very materially the number of channels which are prospectively available; and second, it tends to cheapen the type and increase the efficiency of the transmitting and receiving apparatus. It [fol. 6609] affects the power to direct the course of the waves of sound in the direction in which you wish them to go.

We have progressed in actual experimentation beyond the point of the short wave lengths as I have already described them. The wave lengths which are employed in the various so-called short wave channels, which are employed in the transatlantic, South American, Hawaiian and other transoceanic service furnished through the Long Lines, are approximately 15 meters, or 12 to 15 meters long; that is to say, three times that number of feet. Experimentally we have been able to carry the spectrum down so that the wave lengths are only a foot or two long, and to produce the necessary kind of apparatus for the generation and modulation of that kind of waves, and to detect and demodulate and make use of those waves as they are received. In other words, we have gone down to a fraction of even the short wave lengths which are now employed in the giving of long distance radio telephone service, and to a very small fraction of the wave lengths which were employed in the earlier art.

With respect to the short wave lengths which we use in our transoceanic service, we are able to so deal with them to a considerable extent so that the conversations will not be understood by persons who intercept. Radio in its very nature is not secret, because any element of secrecy or privacy which exists is inherent in the receiving equipment, and if the energy can get into one receiving equipment and be understood, it can equally be understood if it get into another receiving equipment. The most you can hope for, therefore, in connection with radio is privacy against a casual observer. But it is possible to provide a high degree of privacy in such services as the transatlantic service by so altering the form of radio transmitted energy that it is in space no longer intelligible, but it is made intelligible by the proper equipment at the receiving end. That means that even if the message is picked up by a person with apparatus capable of picking up these short wave lengths, but not provided with this special decodifying equipment, it is not understandable. So, in general, what we have is a sys-

[fol. 6610] tem which is private to all intents and purp
but is not secret against the malicious tapper of the ser
The term which is commonly applied to this is that
"scramble" the speech at the transmitting end and "
scramble" it at the receiving end. With this ability
make speech private, and with these ultra-short w
lengths which I have talked of, there is, in my opinion,
prospective use of radio, without the use of any wires, in
plants of the Bell System. We are not actually employi
those ultra-short wave lengths in wholly commercial co
munication at the present time, but we are in actual exper
mental communication. I do not know all of the point
where the experimental work has been carried on, but the
is an actual installation between New York and Newark,
a distance of eight or ten miles. We carry on conversation
without the use of wires over this apparatus and with the
use of the short wave lengths.

Because these wave lengths are so short, on the order of
a foot or two in length, with even very small structures,
we are able to direct the energy within an angle which is
only a fraction of the angle of directivity of the wave
lengths, we will say, of 12 or 15 meters.

We have found means to deal with radio communication,
or communication in the nature of radio, and further direct
it and confine it so that it reaches only the source we wish
it to reach. We have been able to develop a form of cable
structure in which the effect is that of having segregated
out a small portion of the ether and localized it for use
between any two predetermined points, without risk of the
signals employed on it being radiated into space, or without
the converse danger of signals in other parts of the ether
being radiated into it and interfering with the messages.
In other words, it is a form of localized private ether, if you
like. That structure consists essentially of a pipe with a
minimum amount of material inside of it, and with a con-
ductor centrally located in the center of the pipe. By "con-
ductor", I mean a copper wire or a small copper tube. So
that the part of the ether with which you are dealing is
[fol. 6611] merely that ether which is enclosed in the pipe
and between the inner surface of the pipe and the circum-
ference of the central wire.

We have not that apparatus in actual use anywhere. We
have made various experimental installations of that type
of structure, and know how to employ it. There are

technical obstacles to its use at the present time. The obstacles are the normal, practical obstacles which inhere in any new development, of finding the ways and means of creating the structure that you want in the most economical and efficient fashion and at the lowest cost, and in developing the most efficient and most economical types of terminal equipment, or an intermediate amplifying device to make use of this band of ether transmission which the pipe structure gives you.

Assuming a pipe two inches in diameter, of the kind that I have referred to, would have roughly a capacity for transmitting a band of frequencies, as I remember it, about five million cycles wide. Not quite all of that band is utilizable. The lower end of it might not be quite utilizable. Certainly a band four million frequencies wide would be entirely utilizable for telephone or telegraph channels. And, if you take the width of the ordinary telephone channel as about twenty-five hundred or three thousand frequency wide and make allowance for the fact that you cannot bring these channels absolutely together, have to make some allowance, you have certainly the possibility in a pipe of that size of getting at least a thousand independent normal telephone speech channels at the same time and without interference with each other.

I said a thousand telephone channels. In the present state of the art, to utilize those for two-way speech, you would have to divide that in two, you have the possibility of getting 500 ordinary two-way non-interfering speech channels through that; at least that number. That, too, would be utilizable for telegraphic communication as well as telephonic. If you used the thing exclusively for telegraphic purposes, you would get some twenty-five or thirty times as many telegraph channels as you have telephone [fol. 6612] channels, so you would get somewhere from twelve thousand to fifteen or twenty thousand through it at the same time without interference. It could be used quite easily partly for telephone conversation and partly for telegraphic conversation at the same time. It could be used for still other purposes in addition to telephonic and telegraphic, such as the transmission of music. It could be used for the transmission of television.

Not all of those uses are capable of being applied to the same telephone circuits. Some of them are. The telegraph to which I referred is possible over telephone circuits of

the ordinary character, which are employed in the giving of two-way telephony. The transmission of high quality music, or high quality speech, such as is employed over wire circuits connected with radio broadcasting stations is not possible over the ordinary circuits employed in two-way telephony, except where they are very short. They require a special kind of circuit. It is a telephone circuit, to be sure, but it is a special kind of circuit, which has a very much broader frequency transmission range. When you come to things like television, of course, it is quite impossible to even conceive of those kinds of currents being transmitted over ordinary telephone circuits.

Ordinary speech, which we make with our mouths and hear with our ears, involves sound waves which are complex assemblages of waves of a large number of frequencies, but they fall within a range, which, at the lower end, is measured by, we will say, a few cycles per second, a few oscillations per second, and at the upper range, in ordinary speech, by a number of thousand vibrations per second. Now, to transmit intelligible speech, whether it be in the direct transmission such as I am employing here, or over a telephone circuit, the transmitting medium must be capable of transmitting that entire band of frequencies, otherwise, you don't get intelligible speech; or you get speech which is very badly distorted. So it is a necessary requirement of all telephone circuits which are used in speech transmission that they be capable of transmitting all, or substantially all of the frequencies which are involved in the [fol. 6613] sounds which are produced when one speaks. And they must do that without substantial distortion of any of the frequencies. That means, then, that every telephone circuit must in some way provide that kind of a channel. Now, as you increase the number of frequencies which you must transmit, as you do in the case of music where important frequencies are away above the ordinary voice range, you automatically widen out the band of frequencies, and so impose an added requirement on the transmitting medium, whether it be the air or whether it be a wire, or a radio channel, or what not. When you get to things like the so-called television, where the number of frequencies is enormously great, you have the requirement of a tremendously wide band of frequencies which must be transmitted without substantial distortion if the end result is to be what you anticipate.

We meet that added requirement of width of band for transmission of music in the telephone plant by specially engineering and equipping the circuits which are employed in the transmission of that kind of material. Those circuits are adequate for the giving of ordinary two-way telephony; they give a very high quality of that, because they have this wide frequency band characteristic. The circuits which are provided by the Long Lines and the associate companies in the transmission of program material for radio broadcasting in these networks that are set up, are all specially created high quality telephone circuits having this wide band characteristic. That is true with regard to everything except the very short pick-up circuit, where the length of wire is so short that the amount of distortion would be negligible. As an illustration of how different these things are from ordinary telephone circuits, the ordinary telephone circuit, whether it be a long distance, or a local circuit, will quite readily transmit a band of frequencies of twenty-five hundred or three thousand, starting at the lower range and going up. The program circuits which are provided have a band transmission characteristic of eighty-five hundred or nine thousand as the range. In other words, they are three times as good, if you like, as [fol. 6614] the ordinary telephone circuit, or put another way, each one of those would be capable of transmitting three telephone messages at the same time.

This concentric conductor that I have spoken of is capable of being used for a great many bands of small widths such as telegraph bands or a less number of wider bands. It has complete elasticity, that is, you can chop up this spectrum of four million cycles into pieces of whatever width you desire.

It has the characteristic that you can manipulate and obtain any combination or arrangement within its inherent capacity of four million cycles, we will say, without making any alteration in the physical plant itself between the terminals, or alteration in the intermediate amplifying device; merely by making modifications in the terminal equipment. In other words, if and when we have a plant involving that type of structure, if today we want to use that for ordinary telephone speech and tomorrow we want to use it for high quality transmission, all we have to do is to change the terminal equipment at the sending and receiving ends. So far as the conductor itself is concerned, no change

would be necessary at all. That, of course, is not true of the ordinary wire telephone circuit. To produce the type of broadcast transmitting circuit which I have described at the present time, modifications in the connecting wire plant have to be made both as regards the repeater amplifier units which are involved in that and in the arrangement of the wires and their accessories.

In my opinion, there is a prospective use for that new discovery in the Bell System in the near future. I think there is prospective use for it, particularly in connection with new plant, both in the fields of the Long Lines and the associate companies. Looking at a time ahead, I should say there is relatively more use in the plant of the associate companies than in the plant of the Long Lines. Of course, you will appreciate that I am having to project myself somewhat into the future, but I am doing it because of my knowledge of the inherent characteristics of this new thing which has only recently come clearly into our art, and it is of a character which makes it available for use over [fol. 6615] distances which are such that it will be a substitute for existing types of plant now employed very largely by the associate companies and also by the Long Lines.

With regard to this ultra-short wave length transmission that I referred to, there is a limitation at the present time as to the distances over which that can be used successfully; not only at the present time, but to some extent fundamentally as to all time, as far as we can see. The limitation is simply the limitation which inheres in the fact previously referred to that it is a short wave transmission which can be directed. Because it is ultra-short wave it is a type of radio transmission which approaches in its transmission properties the character of light, which is a straight line transmission. The result is that the maximum distance which you can hope to go between transmitting and receiving stations is the distance that you can see the transmitting station from the receiving station without the curvature of the earth, or some large earthy mass, like a mountain, intervening. That is unlike the regular radio waves. These go in a straight line, and if they hit anything they are stopped.

I should assume that on a level prairie country, with transmitting and receiving structures of moderate height, the maximum distance possible to send these ultra-short

waves at the present might be forty or fifty miles, whereas, if you had a station like might obtain in a mountainous region, or does obtain out in the Hawaiian Islands, where you have high mountain terrain separated by the curved surface of the ocean, it might go several hundred miles. So far as I know, there is no limitation of distance for these ultra-short waves, assuming that you get the right amount of energy imposed by the fact that they are short waves. The limitation of distance is imposed by the physical conformation of the earth in that these waves go straight.

The field of radio, together with our kindred investigations in subdivisions 5, 6 and 7 has furnished us with useful tools in connection with our wire communication business. A few of the most important of these are:

The work which is comprised in these three divisions of [fol. 6616] our classification to which I referred has, of course, provided us with the vacuum tube and all of its development, which found an immediate and large field of application in the wire plant as telephone amplifiers or repeaters. It has furnished us with the so-called filter circuits, which enable us to make these split-ups about which we have just been talking, of a wide channel into narrower channels, that is, using the same wire for a number of different conversations.

The work in these classifications has given us the entire so-called carrier telephone and telegraph art by which we can superimpose, even on our existing wire plants, a considerable number of telephone and a larger number of telegraph messages.

Also it has given us all of the tools for modulating, amplifying and detecting high frequency currents. It has further furnished us with a tremendously valuable aggregation of tools to be used in the development of all kinds of electrical equipment and apparatus and circuits. It furnishes us such things as the photo electric cells which are at the base of television and at the base of picture transmission and at the base of a considerable number of arts. As a matter of fact the entire structure of the research laboratory has been completely altered by the coming of the things which have grown out of the work in these classifications.

Substantially all, if not all, of the developments which created the present day vacuum tube out of the original De Forest Audion tube, which was itself not available for any of the uses to which I have referred, were the result of the

research of our department. The whole of the filter art came from our department.

In connection with that, there is one other thing that has come out of this work that I just recollect, and that is the development of the crystal oscillators as a means for accurately controlling high frequency current. That art has largely come out of our work, not the original idea, but the development of that idea for the multitude of uses to which we are finding it applicable. All of our work in the preliminaries of television and the amplifying devices for public [fol. 6617] address systems came from our department. There are a tremendous host of things which have come out of our work. The tools which I mentioned yesterday are applied in all parts of the plant.

Ordinary telephony involves the transmission of the frequencies involved in ordinary speech at their regular level of frequencies over a number of wires between the transmitting and receiving stations. With the advent of the perfected vacuum tube, filters and the other things in the art of these three classifications to which I have referred, which are utilized in radio telephony, there was given into our hands a tool to make possible the transmission, over a single pair of wires, of more than a single telephone message, without interference with other messages that might be on that pair of wires. In other words, a tool to open up the possibilities of utilizing the wire plant for many messages, where before only one pair of wires had been given, and that is what we call carrier telephony. Now, that tool consisted in the production of a high frequency current, or high frequency currents, if we have more than one carrier message superimposed, which frequencies are normally above the frequency which the ear can detect; in other words, they are inaudible. Then, by suitable use of filters, vacuum tubes and the auxiliary apparatus of this art, we take ordinary speech as it comes from the subscriber's station and superimpose it on this high frequency current—modulate it, as we call it—and then put that modulated current, or, if there are more than one channel, as is the case in most of this carrier work, put these modulated currents together with the original speech on the pair of wires, and send the whole conglomeration down the wire to the distant end, where the ordinary speech goes, just as ordinary telephony does, to the desired party, and the carrier speeches have these carrier currents taken out of them, and they are then reduced to

ordinary speech such as they started with, and they are delivered to the separate subscribers.

The same principle is applied in carrier current telegraphy, except in that case the number of non-interfering messages is usually much greater than in telephony. This [fol. 6618] is so for the reasons that I have described in connection with the concentric, that is, inherently narrower bands of frequency are required for telegraphy. These carrier methods are very largely in actual commercial use in the plants of the Bell System companies and in that of the Illinois Bell.

The first commercial use of carrier current was made at about the time of our entry into the war, on a circuit between Washington and Pittsburgh, a distance of about 400 miles. We had had experimental applications before, but that was the first commercial application.

This method of carrier telephony resulted substantially altogether from our investigations in the field of radio and of the two subdivisions 5 and 7 on my sheets.

Before we could have a successful carrier transmission, we had to have some of those specific tools of which I spoke as coming from our radio studies, principally the vacuum tube in all of its forms and for all of its uses, and filters. There are, of course, a considerable number of auxiliary things which have come from these arts, but those two are the principal things which made carrier telephony and telegraphy possible.

The filter is an arrangement of electrical wires and other pieces of electrical apparatus in the form of a circuit, which has the characteristic of transmitting only certain desired frequencies or ranges of frequencies, and of refusing to transmit all other frequencies. For example, it can be made so as to transmit with substantially 100 per cent efficiency all frequencies from zero up to some predetermined limit, and reject all other frequencies; or, conversely, it can be made to refuse all frequencies up to some point, and transmit all others, or it can be made to refuse all frequencies up to some point, and reject all others above a higher point, and transmit the band in between; or it can do the reverse of that. In other words, it is a device which grew out of our studies in these arts, which gave us what you might call the gates by which we could let things into a pair of wires, or take things out of a pair of wires without fear that other

[fol. 6619] things which were on that pair of wires would produce interference.

One of the uses of the filter is the separating of the various currents that are on the wires so that each message will go to the person for whom it is intended. At the other end of the circuit, it is the means by which those messages are assembled on the wires. This was invented by Mr. George A. Campbell of the Department of Development and Research. It was invented primarily as a radio device, but it has found its greatest application in the field of wire telephony and telegraphy.

The experience with the circuit between Washington and Pittsburgh in 1918 to which I referred a moment ago indicated clearly the practicability of this type of telephone transmission, by which the wire plant could be made to carry many simultaneous non-interfering messages. The work in the further development was vigorously pursued, not only to extend the number of circuits over which this method could be applied, but also to reduce the cost and complexity of the apparatus required and the maintenance charges.

A number of succeeding types of carrier systems followed in the years succeeding 1918. By 1923, I think, we had reached the stage of about a third of these developments of modified large forms of carrier. My recollection is that the first of the so-called type C carrier systems was installed in 1924, which means that it must have been developed along in 1923. Up to that time, this carrier telephony had been used substantially entirely on the longer toll lines of the Bell System, which meant the lines of the Long Lines Department and the longer toll lines of the associate companies. If the art had stood still as of that date, and we had made no further developments but had had available the art as of that date, it would have had a large usability in the plants of the Long Lines and the associate companies in the longer open wire circuits.

Since 1923, our work in connection with this subject has been mainly directed to the end of extending the range of applicability of this method of transmission, not only by [fol. 6620] improvements in its inherent characteristics, but also through the improvements which increase the efficiency and decrease the first cost and operational cost of the equipment.

In connection with the development of this carrier method, there have been different types of systems developed. The

original type, that is the 1918 type, to which I have referred, was called type A, and the subsequent ones have been lettered alphabetically. Type A continued in use for only a limited time, and type B came in rather shortly after the installation of the first type A. That installation was quite efficient, but it was a rather expensive type of installation, and very shortly a multi-channel type with much improved apparatus (the type B) came into existence. Both types A and B were developed before 1923. We have gone two steps further down the alphabet.

As I have indicated, type C, as I remember it, was developed about 1923; I think the first installation was in 1924. Type C is still in general use. Type D has been developed since, and is in general use.

At the end of 1930, there were about 450 installations of type C in general service. About two-thirds of these installations were in the plant of the associate companies and about one-third in the plant of the Long Lines. By that time, types A and B had substantially gone out of use. I don't know exactly when the last of them went out; it may be that there are one or two somewhere still operating.

By the end of 1930, there were approximately 600 installations of type D in service. Of these, all but 4 were in the plants of the associate companies. I don't remember exactly when the D type was first introduced, but it was some time considerably subsequent to 1924. My recollection is that it was about 1927. It was a few years prior to 1930. The growth of that system has been extremely rapid in the plants of the associate companies because of its great availability for their type of plant and service. In recent years, the growth of that system has been many times as great in the plant of the associate companies as in the plant of the Long Lines.

[fol. 6621] Our research in the field of carrier current wires has led us to the research and development with regard to the use of the principle in connection with cables.

Initially, as I indicated, the application of this carrier art was confined to non-loaded open wire structures, essentially to long lengths, and in the early installations only a limited number of wires or pairs of wires on a pole line could be equipped with these facilities because of interfering effects. As the system and methods were developed for the arrangement of the wire plant, it became possible to extend the use, not only on shorter and shorter circuits, but also to apply

more of them to pole lines; but still we were not able to employ this form of transmission to cable circuits because of the then existing inherent characteristics of those cable circuits.

However, the desirability of being able to do this, namely, to operate carrier on cable wires, was so great that we spent a large amount of energy, time and money in an attempt to solve that problem, and we have substantially solved it so that we are now able to use the carrier principle on cable circuits, that is, on pairs of wires encased in lead pipes.

We are now in a position to use it. That is, we have carried our experimental development work to the point of having actually in operation a trial experimental installation of which this is the principle of operation.

My opinion is that this development will have a very considerable field of use in the future in all of the companies, that is, both in the plants of the Long Lines and in the plants of the associate companies. As to the exact ultimate length of circuits over which it may be applied, I cannot, of course, say with exactitude, but I have no reason to doubt that the field of its first application will be on circuits of inherently short length.

These carrier systems have advantages other than the multiplying of the number of conversations that may be carried on simultaneously and without interference over a single pair of wires. They have the same kind of advantages, but in a more limited amount, that I have described [fol. 6622] in connection with the so-called concentric conductor; they have all of the advantages.

In connection with vacuum tubes, I have already explained in general the uses in the telephone plant. They are employed in all of our telephone amplifiers and repeaters, and all of this work which makes carrier telephony and telegraphy possible, whether over open wires or cables, in the whole field of radio, and in many of the measuring devices which are employed. The device itself involves a heated filament, a high-vacuum, and some terminals enclosed in the containing tube, a device which in one form is familiar to everybody who has a modern radio set. Its primary characteristic is that of enabling one to control, without distortion, a considerable amount of locally produced energy, with a very small amount of energy from some distant source. In other words, its primary charac-

taristic of great value inheres in its amplifying properties. That is, we can take a voice current that is very weak and, with the use of this vacuum tube, make it very loud without destroying its qualities at all, and without distorting it.

Mr. Lee DeForest invented the vacuum tube. He patented it about 1908. The American Telephone and Telegraph Company shortly thereafter purchased rights under that patent, and ever since that time our department has worked on the development of those tubes. In the form in which DeForest developed it, the vacuum tube was not usable at all in the telephone system, for the reason that it would handle not even the small amounts of energy which are involved in commercial telephony. The first thing that had to be done before it could be usable at all was to remove that inherent limitation in the DeForest tubes. This was removed by simply producing a very much higher degree of initial and permanent evacuation of the tubes; that is, making the vacuum substantially perfect. This was a development of our department, and the so-called high vacuum tube is the present day foundation of a dozen or more different branches of the telephone art.

The first development was the one I have just described, [fol. 6623] of making the tube capable of handling larger amounts of energy, and of making the tube more stable. From that point on, the developments took a number of different directions. In one direction was a large series of developments looking to the production of a filament which would produce large quantities of electrons (the electrons being the working part of the vacuum tube) with a high degree of uniformity and at the least possible cost. And beyond that came a series of development seeking to enlarge the capacity of the tube in the sense of handling greater and greater amounts of energy, and a large number of collateral developments concerned with vacuum tubes of particular characteristics, for particular purposes.

We have been able to make very considerable progress in all of these things, particularly with regard to the matter of the electron emission filament thing, and particularly with regard to the size of these vacuum tubes. Whereas the first DeForest tube, as I have indicated, was incapable of handling even the small amounts of energy which are involved at amplifier stations, it is now possible to make vacuum tubes with essentially perfect characteristics which will handle hundreds of horsepower of energy.

In the case of the developments relating to the filament, even the first types which we ourselves made of a character which was suitable for use as telephone amplifiers, the filament was a relatively short-lived affair; it probably would not last, on the average, more than 1,000 hours of service; it took about 1½ amperes of current just to heat the filament up to the point where it would emit the electrons. Those early tubes cost $8 or $9 each to make. At the present time, the tube for corresponding service has a life in excess of 20,000 hours, or 20 times as long. It costs, roughly, one-third of the price of the tube of the earlier art (between $2 and $3), and the amount of current which is required to heat the filament, instead of being 1½ amperes, is about ½ an ampere, or about one-third of the energy formerly required.

So that, from the standpoints of the length of life, the initial cost of the tube, and the cost of operating the tube in [fol. 6624] whatever place we use it, tremendous reductions have been made. In addition to that, all present day vacuum tubes which we use in our repeater plants and other places are essentially stable during the period of their usability, that is, they have uniform characteristics as long as they are usable at all, whereas the earlier tubes did not have those characteristics.

The effect of these improvements has been to greatly extend the field of use. For an example of the extension of this field of use in the Bell System, I will take the case of telephone repeaters, which was the first field of use of the vacuum tube; it has enormously extended its use in that field.

The first application of these vacuum tubes as telephone repeaters was in the so-called transcontinental telephone line which was installed in 1915, and at that time the art was such that telephone repeaters were available only on long open wire circuits. By that I mean that they could be used on physically relatively long wires, and were of such operating cost that they were not attractive for shorter wires, even had we been able to use them. Each time a reduction in the cost of the tube itself and in the incidental apparatus which is concerned in its application as telephone repeaters was made, it opened up wider and wider fields of economical use in the plant.

From the first set of installations in 1915, the use of these repeaters extended quite rapidly. By the end of 1920, we

had about 1,000 repeater installations in service, practically all of which were in the plant of the Long Lines. Five years later, that is, by 1925, that usage had grown to approximately 7,500, of which about one-third were in the plants of the associate companies. By the end of 1930, the total number had grown to about 81,500, of which still about one-third were in the plants of the associate companies, and about two-thirds in the plant of the Long Lines.

As the improvements are made in that vacuum tube, and as reductions in cost occur, they will increase the rate of growth of tubes in the associate companies more relatively [fol. 6625] than in the case of the Long Lines. That is so because, in the use of repeaters in the very long lines of the associate companies, it has already reached well on towards the point of saturation, as determined by the length of the circuits. The Long Lines Department has essentially long circuits. It has no circuits under 40 miles. Consequently, further reductions in the length of circuits over which it is economical to use repeaters will not substantially affect the Long Lines. Their increase in use will be measured substantially by increasing numbers of circuits; that is the ordinary growth factor. Whereas, in the case of the associate companies, they are affected by that factor also in the circuits on which they can now use repeaters, but the studies and research and development work which is still continuing, and is continuing to decrease the length of circuits on which it is economical to employ repeaters, in addition opens up fields of use in regions not hitherto available to the application of repeaters, and of which the associate companies have very large numbers. That new field of use is practically confined to the associate companies because it involves circuits under 40 miles in length. The rate of growth of repeaters in the plants of the associate companies in the two years 1928 to 1930 was double the rate of growth in the Long Lines.

I expect that characteristic to continue with the further development of the tube, and the further reduction of its price, although the sum total amount of reduction of length of the circuit which is possible is not so great as it once was, obviously. That is, the present state of the art has reduced the length of open wire circuits on which it is economical to use repeaters to something in the neighborhood

of 35 to 50 miles, and on cable circuits it has reduced it to something on the order of 10 miles.

In addition to the uses of the filter which I have already described, it has further uses in the Bell System. I have described its use in connection with things like carrier current, but it has found a field of application in a large number of other places. For example, it is employed in connection [fol. 6626] with the elimination of deleterious currents, from the charging circuits which we use in supplying current. It is used, not in our plant but in the plants of power, light and railroad companies, the circuits of which tend to produce interfering disturbances in our circuits, as a means of eliminating those disturbances, eliminating them from being present on the wires which are in inductive relation to our wires.

In particular, in recent years the street railway art was very materially changed by the introduction of the so-called mercury arc rectifier as a means of producing direct current to supply the trolley wires direct from alternating current without the necessity of introducing the use of rotating apparatus. But the first introductions of those mercury arc rectifiers bade fair to wreck the service of the local telephone companies, because of the vast amount of high frequency induction. That problem has been solved by introducing filters which we have made available to the street railway people, or the manufacturers of that kind of apparatus, and in the specific development of which we gave them the benefit of any advice which we had. That is, we procured the installation of these things in their plant as a protection to ourselves. For that particular kind of trouble, it is imperative that the source of the trouble be eliminated. It is nothing we can cope with in our plant, once it is introduced in our plant, because it is in the voice range.

Now, filters are used in numerous other places. One place where they are used to a considerable extent, and bid fair to be used to a much larger extent, is in connection with the elimination of the noises which are produced in subscribers' radio receiving sets whenever, say, the dials of dial telephones are operated, or frequently when they are operated, an objectionable type of noise, and one which, before the introduction of filters (very simple and cheap filters) into the subscriber's set itself, was a very difficult thing for the telephone companies to consider coping with

In some cases, it would have been very expensive to cope with it. But, by the introduction of the filter art into that [fol. 6627] part of the plant, we have developed the means for handling that kind of problem very simply and cheaply.

These two uses of the filter (that is, to protect against trolley currents and to protect the radio receiving sets) are substantially all in the plants of the associate companies because it is in their plant where this difficulty occurs mostly.

In addition to the devices which I have described as actually in use in the plants of the local operating companies and the Long Lines as a result of our studies of the vacuum tubes, filters, radio and other subjects under sections 5, 6 and 7 of my analysis of expense by classes of work, there has been indirect effect of that work upon the plants of the various operating units of the Bell System.

In an earlier answer, as related to all or some of these things, I referred to some of the indirect results which have grown out of this work in the production of new laboratory tools which we use to create new things.

The coming of the vacuum tube and the other items of these three classifications has completely revolutionized not only the way in which we do the research and development work on practically everything with which we are concerned, but has resulted in our ability to develop things which we could not otherwise have developed, and to improve the characteristics of many of the things which existed before, simply because of the fact that it has given us very accurate yardsticks or measuring instruments with which to judge the effects of our work.

Also, some of these devices like the filters, have made it possible for us to investigate characteristics which are fundamental in the design of apparatus or equipment or systems of circuits by the process of segregating the whole band of frequencies which are involved in speech transmission into narrow bands, or bands of any predetermined width, and finding the effect of the individual parts; whereas, before the introduction of filters and vacuum tubes, we had to make our examinations wholly by the overall effect, without any ability to go into the individual fac- [fol. 6628] tors which made up that result, now we are able to dissect and measure the influence of the parts, and to

dissect and measure the influence of modifications, one at a time, which we make.

For example, when I first went into the business, and for many years thereafter, when we were attempting to develop transmitters or receivers or circuits or anything involving speech transmission, the only measuring tools which we had were our ears, and the only sources of the currents which we measured were the sounds produced by our voices. And, since those were composite sounds in their production, and since the ear could measure only relatively gross variations of these composite things which it received, the only way that we could get any accuracy in the determination of the efficiency of a piece of apparatus was by a tremendous number of repeated tests, by the statistical method, and the individual variations in those observations might be enormous. The net result of that was that not only were certain kinds of development barred to us, but even where we could make development, the end result was so concerned with the uncertainties of the measuring implement that, in order to insure against deleterious apparatus, or inefficient apparatus getting into the plant, we had to make large allowances, and consequently the plant was, on the average, not as efficient as we knew it might be, and was certainly more expensive.

Now, that whole thing has been changed by the coming of these new devices. And, more than that, the coming of these devices has enabled us to make that analysis of speech and the production of speech sounds, and that analysis of the ear and of the effect of various parts of the frequency range on the efficiency of hearing, which are fundamental to the design of everything in the telephone plant.

The telephone plant, in the last analysis, is measured by its ability to interpret speech sounds, to transmit them, and to reproduce them for some distant party to hear, so that, by the use of these new tools which enabled us to go clear back into the fundamentals of speech and hearing, we have opened up an entirely new realm of possibilities which we have adopted in the development of highly efficient [fol. 6629] apparatus, systems, circuits and equipment of all kinds, throughout the plant. You can hardly go into a room in the research laboratory today without finding some or many of the elements of the art of these three classifications there employed as accurate measuring tools. That is

certainly true of the electrical parts, and is largely true of the parts of the laboratory devoted to mechanical things; so that the indirect results of the techniques alone have had a vast influence everywhere in our development work, and their results appear in all of the classifications that are shown on these sheets, in so far as those classifications relate to physical things.

That is, this matter that I am now referring to is the ability that we have now to improve the parts of the plant that are old through the means of these new measuring instruments, to develop entirely new things, either to take the place of old things, or to supplement those old things. What I was trying to convey was that in some classification which appears to have no connection with these three classifications, work is done and results are obtained which could not be done, or the results not obtained, were it not for the tools which are provided by the arts covered by these three classes. That is one of the reasons why, at the beginning of this examination, I said that these three arts are so fundamental that they underlie all that we do.

I can mention some specific illustrations where our improved design and method and measuring technique have resulted in improved apparatus in the plants of the local companies. Take, as an example, the modern handset, which has become so much a part of the telephone plant, the instrument in which the transmitter and the receiver are assembled together in a rigid handle. If it had not been for the techniques involved in these three classifications, it would not have been possible for us to develop that instrument with its high efficiency and quality characteristics, characteristics which are required if it is to be introduced into the general telephone plant of the Bell System, or to assemble those together in the rigid handle [fol. 6630] which makes up their mounting, and to give to the instrument its essentially positionless effect; that is, its efficiency, irrespective of the position in which you hold it; the old desk set instrument was usually held in upright position, and if it was not, its efficiency would be very much impaired.

You could not take the transmitter and the receiver on the old desk set and put them together in a rigid handle, to give you the handset. That was so partly because of this positional effect, and partly because of the structure of the transmitter, particularly. The structure was such

that when you tried to put that particular transmitter into a handle and maintain its efficiency, you had great tendency for the instrument to do what we call "sing," that is, to produce a sustained note determined by its own natural period, the same phenomenon that occurs with an ordinary desk stand if you take the receiver and put it in front of the transmitter.

May 11, 1932.

Among other illustrations which I had in mind were some which I have previously referred to, but which I will here repeat. For example, I mentioned factory and repair shop instrument tests, which have grown out of the application of this technique, and which make for a more uniform output of new and repaired instruments. The same thing also with regard to field measuring instruments, which enable the telephone companies to operate and maintain their local plant with a higher degree of certainty, efficiency and economy. The use of these tools and techniques also has permitted us, as I have referred to before, to engineer the plant on a more improved and accurate basis.

Then specifically with regard to the improvements in the elements of the plant, it has enabled us to develop improved types of station equipment, which bid fair to have a very wide application in the plant; specifically what we call the anti-side tone circuit, which will make it possible for us to use instruments of the maximum transmitting and receiving efficiency, with a minimum amount of what [fol. 6631] is known as sidetone, which is the effect of the feed back from the transmitter to the associated receiver. That has a double advantage, in that it tends to remove the interference of the speaker with his own hearing and more particularly it has the effect of eliminating, or minimizing the effect of noise where the instrument is in noisy places, and makes the efficiency of the instrument very much greater.

These tools and techniques have also had the effect of enabling us to design and make very much lower cost loading coils, which are largely used in the inter-office trunk plants of the associate companies, in their local exchange areas; and the same thing applies to the design of improved systems of loading, enabling us to transmit wider

bands of frequencies, and so better the quality of the transmission.

They have also, as I think I have referred to before, put us in a position to develop higher quality transmitters and receivers, or, in other words, to improve the transmitting efficiency of the receivers and transmitters from a quality standpoint, that is, from the standpoint of distortion elimination. This is an extremely important thing because of the fact, which I mentioned before, that in the last analysis the aim of a telephone system is to give as nearly perfect transmission as it is physically and economically possible to give, and we have been and still are quite a distance from the ultimate, which we have felt was a desirable goal, and which the introduction of these tools has enabled us more closely to approach.

Then there is another very large field in the local exchange plant, which has been materially benefited by the introduction of these new tools, and that is the ability which they have given us to build a better balanced local exchange plant. By that I mean, a plant which is better balanced from the standpoint of its susceptibility to picking up extraneous interfering currents such as those produced by electric light and power installations, street railways and what not. The ideal of a telephone system operated in proximity to interfering sources would be a perfectly balanced plant in which interfering electro-magnetic disturbances would not produce the sound effects in the re- [fol. 6632] ceivers of the users of the service. The use of those tools has not only enabled us to find ways and means of bettering the plant construction itself, but of locating specifically the places in which this interfering disturbance occurs, and so eliminating it.

Then there has been the interaction, or the reaction of the whole filter art, which I have previously testified to, on the acoustical and mechanical parts of our transmitters and receivers. The development work in connection with the filter art showed us how to segregate portions of the electrical circuit within the frequency band, into whatever parts we wanted and to study those separate parts as to their influence on the whole. It also showed us that since mechanically vibrating systems are analogous to electrically vibrating systems, oscillating systems, the same general rules could be applied to mechanical systems

as they appear in transmitters and receivers, and we have been enabled by the extension of this filter art to improve the acoustical and mechanical parts of the transmitters and receivers, which, of course, are at the heart of the business, and are the things primarily used in the local exchange plants.

I have already referred, I think, to the case of the extension of our knowledge of the filter art to its application in the dial system, sub-station instruments, where the operation of those instruments tends to produce objectionable noises in adjacent radio receiving sets, and where, through the use of this art, we have found a feasible and reasonably economical way of obviating that kind of trouble, which was very serious, and bade fair to be more serious, and very very difficult and expensive to obviate without some such thing as we have gotten out of the filter art.

There were handsets in use in Europe for many years. The difficulty in using them in this country was found in the high efficiency of the transmitters and receivers which were the standards of the Bell System, and those standards were, roughly, the standards of all telephony in this country. Wherever handsets outside of the United States were employed, the efficiency of the transmitters and re- [fol. 6633] ceivers had been sacrificed for the sake of convenience, that is, for the sake of the convenience of having the transmitter and the receiver mounted in a rigid handle. I think at some time or other I indicated that a transmitter and a receiver associated together in a rigid handle, and connected to a source of power, have a tendency to vibrate in their own natural period, or to sing, as we call it, to produce a noise which not only is objectionable, but which destroys the efficiency of the transmitter. That is characteristic of any electro-mechanic vibrating system to which power is applied, and the higher the efficiency of the transmitter and the receiver, the greater is this tendency to sing. With the very high efficiencies of the transmitters and receivers which were standard in this country, and on which the whole plant of the Telephone Company had been engineered, this tendency was very great; and we found it impossible to associate those two instruments together in the form in which they were normally used in a rigid handle, without producing this deleterious effect, and we could not do what they had done in other countries, de-

grade the efficiency of the sub-station instrument for the sake of convenience, without completely deteriorating the whole basis of telephony.

So our problem was that of finding ways and means of designing transmitters and receivers of efficiency as great as was needed to maintain this general efficiency, and at the same time which were susceptible of association together in a rigid mounting. That problem was one on which we worked for many years, but which we never were able to solve until we had the facilities afforded by the tools of this art covered by these classifications.

The matters which I referred to in all of the 12 classifications which I have mentioned are in actual use today in the Bell System. They are in use in all parts of the Bell System, but those illustrations which I have given are primarily in use in the plants of the associate companies, and primarily, also, in the plants of the local exchange areas. Many of them are only in use in the local exchange plants. Some are confined to that particular class of plant [fol. 6634] and others are general to the whole System. The handset, for example, is purely a local exchange affair. This matter of the anti-side tone circuit, the type of loading coils to which I have referred, the work which is being done in connection with improved transmitters and receivers, of course, are all essentially local exchange plant affairs, and confined to that class of work. Some of the others have wider application.

These 12 matters to which I referred have reacted most beneficially on the general design of the plants of the operating companies as a whole. They have reacted on the design to better it, largely to cheapen it, and to make it more reliable and satisfactory in giving the telephone service for which it is intended.

I have mentioned some specific matters where they have reacted on the plants and resulted in a decrease in cost; for example, the development of those much cheaper loading coils which are used in large quantities in the interoffice trunk plants of the local exchange areas; the whole matter of balanced plant to minimize or eliminate the effects of extraneous noise has tended to cheapen the construction and make more reliable the construction of the plant in the local exchange area. Those improvements have had an effect upon the kinds of wire used in the local ex-

change plants and elsewhere. They have had the effect of making more available the economies which reside in the development of the so-called fine wire cables by making it possible, without reduction of transmitting and receiving efficiency, and, conversely, with an improvement in the efficiency, to use a cheaper connecting wire plant such as the type of plant provided by the fine wire connecting plant I referred to.

We commonly refer to fine wire in our connecting plants as wire of less than 22 gauge, that is, specifically, 24 and 26 gauge. The Long Lines Department does not use any conductors of that class. They are to be found wholly in the subscriber's loop and inter-office trunk plants of the local exchange areas. I have never made any specific study to determine the economies that have flowed and are likely to flow from extension of the use of fine wire as to any [fol. 6635] actual difference, but it is perfectly clear from the character of the cable which is made possible by this, and the extent to which it is employed, that those savings are measured by many millions of dollars.

These developments to which I have referred are still proceeding.

On the basis of the new technique and the new devices which we have already developed along the lines stated, there are further substantial economies which it is now actually contemplated introducing into the plants, and this introduction is one for the near future.

The matters to which I have referred do not constitute all or even even most of the improvements that have been introduced in the plants of the local companies by reason of our knowledge gained through the development of the vacuum tube device and the art that has been developed thereon. What I have mentioned have been merely illustrations.

There are important prospective uses of our knowledge and development under classifications 5, 6 and 7 which have not been introduced into the plant to any substantial extent.

In the course of answering questions, I have indicated a considerable number of specific applications and incidental values; specific applications of the things that have come out of this art, and the incidental values which have resided therein; but I have not, so far as I remember, touched upon a field in which there are large prospective values

but in which we have made no beginning at all in introduction, or have made only a very slight beginning. For example, I think I have mentioned the introduction of such things as the actual use of devices as amplifiers in all parts of the plant; but there are other uses for these amplifiers or repeaters, as we call them, particularly in the plants of the local companies, the local exchange plants, where we have either not made as yet any material application, or have made only a very limited amount. Illustrations of that would be the use of automatically switched in repeaters, in the handling of long inter-office trunk calls through manual or step-by-step central offices; that is, an automatic [fol. 6636] dialed call from one office destined for a distant office, to which there was not interstate traffic, passing through an intermediate office, would have repeaters automatically switched into the connection at this intermediate office, to provide the necessary grade of transmission; and such repeater would automatically not appear in service if the call from the originating office was destined for an office in which it was not required. Now, that is a use which as yet is very limited, but which bids fair to be very extensive, because of the growth, and not only because of the growth of these dial type local exchange areas, but primarily because of our ability to utilize repeaters on shorter and shorter circuits. That business would be an intra-city business practically or, at least, an intra-local exchange area business, as city and suburban business.

Then similarly, there is the use of repeaters on long local and toll inter-office trunks, not automatically switched in, and repeaters on long station lines connected to private branch exchanges, of which there is a growing number, particularly where the private branch exchanges are large, and have many long lines; and on some of those, repeaters or amplifiers are available; and the same sort of thing on the inter-connecting lines between the private branch exchanges.

In many cases, the local companies are giving service to organizations which have more than one private branch exchange, because their business is located in different parts of the city, and they are connected by their own connecting trunks and, where these trunks are long, they afford the possibility of use of repeaters, and that use is a prospective large use, although at the present time it is not very great.

Then, of course, there is the thing which is already in use to a considerable extent, and which bids fair to be a considerable use, the provision of special sub-station sets for those whose hearing is defective. In those sets, the receiving element is provided with an amplifier to raise the volume of the incoming sound to the point where persons can hear. That use is likely to be very considerable when you consider that 10 or more per cent of the population is affected with deficiencies of hearing.

[fol. 6637] Then there is the whole system, not yet touched at all, of program distribution through the wire plant of the local exchange areas; in other words, the distribution of news, music and entertainment, not by radio broadcast, but by wire distribution. If that service should come into the picture, of course, it would involve an enormous application of this art, strictly in the local exchange area. Our developments are such that we are equipped from a practical standpoint to conduct that kind of business at the present time.

I have noted down here a couple of other illustrations, one of which, while it does not involve a large number of these amplifying devices of this art, involves them in a wide-spread service in the local exchange area, and that is in the giving of time service, such as in effect here in the City of Chicago. The giving of that service would either not be possible, or would be extremely expensive, if it were not for the use of these devices from this art, in the giving of that service.

This art has also provided us with the tools for an entirely new usage in the local exchange area, as in other parts of the system, in that the provision of the carrier system, by giving us the ability to assemble a multitude of communication channels on a given pair of wires, or on a single pair of wires, provides us not only with means for using those channels for actual speech transmission, but using them for signaling purposes. So it has opened up to us the whole field, a field not yet attacked at all, but which seems promising, of using the voice frequency or carrier method, particularly in the lower range of frequencies, for dial signaling, the carrying of the signaling current throughout the plant, where it is now carried by direct current.

Then there is a field of service which is of very recent

introduction into the system, this so-called switched teletypewriter service, in which a printing telegraph service on a switching basis analogous to that by which telephony is given is being introduced; that is, the subscriber with one of these printing telegraphs asks to be switched to somebody else with whom he wishes to communicate, and the telegram is typed on the sender's machine and is repeated on that of the receiver. That service was inaugurated very [fol. 6638] recently, within the last four months. It bids fair, if the expectations are at all realized, to have a widespread use, not only on interstate business, but on intracity business; that is, if a large number of these instruments are on the premises of subscribers in a given city, they will be used not only for telegraphic communication to distant points, but for such telegraphic communication as is required within the areas of the local exchange; and this art provides much of the means which can be made available for that service.

In the same way, the use of this type of instrument is finding a field of application in the automatic recording of troubles in the telephone plant, particularly in the machine switching plant, where it is very difficult, or at least, has been very difficult, to locate a transient kind of trouble. This art has provided us with the means of making a permanent and definite record of where that trouble occurs.

Then there is the whole field, which has not yet been attacked at all so far as application is concerned, or almost not at all, of the use of this art and the devices of this art in the switching plant of the telephone companies, which forms so large a part of the telephone companies' equipment. These devices, particularly the vacuum tube, and the other thermionic devices which grew out of our studies of the vacuum tube (and they are very numerous, and increasing in amount and number all the time as our knowledge increases) have properties not alone of amplification without distortion, but they have properties which make them available for many other uses. And some of those properties make them available for application where, in things like relays, certain circuits have to be closed or opened, and where in the past the only way of performing that operation was through an electro-mechanical device. This art, and the properties of these devices which have grown out of it, are such as to indicate that the application in the field of

switching may be very very large in the years immediately ahead.

The emphasis until very recently in the development of this art and the devices of this art, has of necessity been on [fol. 6639] the side of their use as amplifiers rather than for other purposes. That was partly because there was an immediate and otherwise unsolvable urge to use them there, and partly because the quantitative values of these properties were not available until a large amount of research and development work had been done; so that that whole field which we are actively engaged in considering at the present time, you might say, has practically not been touched at all as yet. And it is the field primarily of the local exchange area, although to whatever extent these devices develop in that field, they will be used, or they will be usable wherever the switching of electrical circuits together is involved.

The things that I have referred to in these last answers will have their field of greatest application in the plants of the associate companies, and primarily in the plants of the local exchanges, rather than in the toll plants. Many of the things that I have referred to this morning have had to do wholly with the local exchange plant, and others are more largely concerned with that. This last element which I have just referred to, this element of prospective use in the switching field, of course, is essentially a use of the local exchange plant, because it is there that switching is done in vast amounts. With regard to that class of improvement, it would be confined wholly, or practically wholly to the local operating companies.

All of the matters to which I have referred are matters of importance and many of them will involve, when they come into use, apparatus of plant in large amounts. Of course, some that I have mentioned have to do with methods and techniques which in themselves do not involve large apparatus, but enable us to engineer, manufacture, install and operate the plant more efficiently and economically.

The transmission of music, entertainment, etc., over the wires of the local companies would be of advantage to those companies in that it would provide them with another use and source of revenue for the type of plant which they have installed for the giving of the ordinary telephone and telegraph service.

[fol. 6640] Considering all the uses and effects of the results of our studies and work under classes 5, 6 and 7, my

opinion is that so far as the expenditures in these three classifications are concerned, as related to present benefits and prospective benefits measured in plant investment units, the benefits will be greater for the associate companies than for the Long Lines per dollar of plant investment. That is largely because many of these things to which I have referred have such an enormous application in the plants of the associate companies.

As indicated in Exhibit A-118, I have consolidated these three classifications (that is, 5, 6 and 7), and have allocated them on the basis of the total plant in service; that is, on the basis of the relationship of the Long Lines plant to the total plant. In my opinion, that method allocates to the Long Lines the full share of the expenses of our department under these classes.

The next column to the right indicates the expense allocated to the Long Lines in dollars for each of the classifications, using the basis of allocation indicated in the second column and applying the percentages indicated also in the second column.

The next column to the right is the difference between the first column to the left and the amount which I have allocated to the Long Lines.

The fourth column of figures I have allocated to the Chicago area on the basis shown in the fifth column, in which the basis of allocation is indicated, and the percentages are given on the basis which the investment in the Chicago area bears to the total investment of the remainder of the System less Long Lines; that is, the Chicago area's portion of the associate operating companies. I have in each case used the same factor that is used for apportioning the Long Lines. The last column to the right shows the dollar result of applying the percentages of the preceding column to the figures of the column preceding that, that is, the fourth column of figures. I proceeded in the same manner with [fol. 6641] regard to each of the years dealt with on these sheets.

The sheet which is marked for identification as Plaintiff's Exhibit A-119 is a summation of the amounts of our expenses allocated to the Chicago area, obtained in the way which I have just described, because I have made a correction for credit against our expense involved in the non-associate sales of the Western Electric Company of telephone

apparatus and lead covered cable. By "telephone apparatus" I use the expression that the Western Electric uses less what it calls its special commercial products. Now, in attempting to make an allocation in the way in which it is made in this exhibit, and for the reasons that have been indicated throughout my testimony, it was not possible to make a preliminary correction for any credit on account of these non-associate Western Electric sales because of the nature of the work done under the several classifications which spread all over the entire field of our work. In the original attempt to allocate, I was dealing with totals. I was not dealing or attempting to deal with classifications, which are the artificial divisions of our work for the purpose of executive control, and, as I was dealing with totals, I was at the same stage that I am now at with regard to this other method. That is, when I was dealing with the totals, I took off the total allowance for this Western Electric outside business, so to speak, first, and then allocated what remained. In this case, because of the split-up into classifications, I could not do that, so I found the amount that would be allocated to the Chicago area of the Illinois Company without deducting for the Western Electric outside sales, and then I made a pro rate deduction. That is what this sheet shows, and the figures are all taken from the other figures that appear in the other exhibits.

(Sheet marked for identification Plaintiff's Exhibit A-119, offered in evidence. Objections and ruling reserved.)

Very little of the work that is shown on these sheets which we have been dealing with finds use in the plant usually in [fol. 6642] the same year in which the work is done and the expense incurred. Usually it follows by a year or two years, or something of that kind, and sometimes more. A very small amount of the work covered by these sheets (Exhibit A-114) which are the work sheets, finds application or use in the plant or business of the operating companies in the year in which it is done or the expense incurred; a small amount of it does. Obviously, this item of the expense which we incur in connection with the rate case testimony is a very current expense, and in the same way some of the other classifications, such as the one on interference where a large amount of consulting work is done with the opera-

ing companies, involve a moderate current application. Our consultation work with the operating companies is work which they get the benefit of directly. Whether they can apply it or not, they get the benefit directly. Except for these kinds of classifications, the benefits from our work are available in the plants of the associate companies and the Long Lines at intervals ranging from a year or two, in the case of the kinds of work which are more nearly in the situation of actual immedate manufacture, installation and use, to very long periods in advance with regard to this more fundamental work. Some of it may not find its place in the plants for 10 years.

I should say that a much larger proportion of the expense incurred under subdivisions 5, 6 and 7 than in many of the other classifications was of the character which would find its place in the plant further after the time when the work was done. Of course, there is a classification covering fundamental studies applying to communication (I don't remember the exact title) which is of such a fundamental character that it may be a very long time in advance. There are also items in others of these classifications which are like the majority of the items under classifications 5, 6 and 7.

I have prorated our work on the basis of the plant existing in the years in which the work was done. I have already explained that in my attempt to prorate the expense of the Department of Development and Research on any basis, I found one base which seemed to me a [fol. 6643] proper one on which to attempt a proration, and that is the base which involves the investment in physical things, because our work in the Department of Development and Research deals essentially with physical things, and not primarily with the operation of physical things or with the current introduction of those physical things. Therefore, the logical base, in my judgment, to use is a base of physical things. In the first analysis, I took the totals and took the entire base and that, in my opinion, is the most accurate allocation or base for allocation of work of this kind which can be used.

Now, having taken that base (and it would be true of any base that I might take), and having eight or ten such years

to allocate, I am limited to the factors which appear in those years. I could not take factors preceding the year 1923 of plant values because I would then be dealing with a situation in fact at a time much antecedent to the period in which the value would obtain, and I cannot take the time following the present, because I have no knowledge of what those factors will be in the years ahead. Consequently, in any attempt to allocate these expenses between the recipients of the values in a year by year fashion, the only thing that I can do is to take the plant values as I find them in the year in which the expense is incurred, and I think that is a reasonable base on which to proceed as well, because the expense which was incurred in that year was charged against the size of the plant as it existed at that time. Obviously, if the plant had been but half the size, we could not have justified that amount of work. In my opinion, that method gives a fair result.

Cross-examination.

By Mr. Haight:

"Mr. Haight: If your Honor please, there are some subjects on which we might interrogate Dr. Jewett but which have been fully covered on depositions already taken, so that I will not attempt to cover some of these and hope to avoid such."

I spoke of certain tools that had been developed in the Department of Development and Research of the American [fol. 6644] Telephone and Telegraph Company and in the Bell Laboratories and that had been beneficial to the industry. In my opinion, the investment for those developments has been justified economically and, in my opinion, the results of that work have been rather large and favorably large economically. A great many of them have been beneficial to the associate companies and to the local exchange plants.

It is my opinion that they had been or would be more largely beneficial to such plants than to the Long Lines.

Referring now to the tools and their effect, and not to the specific use of the devices as devices, in my judgment I should say that there is no question that, in the total value, the effect of those tools has been much more largely valuable to the associate companies than to the Long Lines.

By that I mean their value as a whole to the whole group of associate companies on the one hand, and the Long Lines on the other hand.

I am speaking economically.

In respect to the things themselves, and not as tools, I should say that the value of the use of the things themselves, or many of them, has been greater to the Long Lines than to the associate companies. I say that, carrying in mind, of course, the fact that many of the things which have found a use only in the plant of the Long Lines have not only not been of benefit to the Long Lines, but have been quite the reverse, and have involved expenses incurred for the benefit of the associate companies, particularly radio. I think if I could appraise the total value to the associate companies as a whole on the one hand, and to the Long Lines on the other hand, the value would be much greater for the associate companies as a whole than for the Long Lines; but as related to the plant in dollars per plant, it probably would be in favor of the Long Lines. For some of the units, it would be very much in favor of the Long Lines.

The results of the development of what I have denominated as the tools have been the making of things cheaper, the making of installations cheaper, the operating costs less, and the service better. The effect has been a con- [fol. 6645] tinuing one over the last 10 or 15 years, year by year, but not uniformly continuing. In each of those years, there has been that beneficial effect in those four regards, although the pace has been different in different years.

The same thing is true in regard to these developments in respect to the tools, in so far as the Long Lines are concerned, but the pace of increase has not been so great in the case of the Long Lines as it has in the case of the associate companies.

In respect to the things as distinguished from tools, those developments have resulted, as far as the associate companies are concerned, in the making of the things cheaper, in the installing of them more cheaply, in the operation of them more cheaply, and in the giving of a better and a more extended service. The same thing is true, and in the same regard, in respect to the development of things relating to the Long Lines.

If it should appear that through the use of these things, large profits had been gained by the Long Lines, I would not necessarily expect even larger profits from the associate companies through the use of these developed and improved things, since the effect is greater upon the associate companies. This is because the business of the Long Lines is a very much simpler business than that of the associate companies. The business of the associate companies involves very large quantities of types of service with which the Long Lines have nothing to do, and I am not in a position to make an appraisal of the effect of these particular things which have come out of the work, in relation to the relative profits of these two groups, in the face of the very complicated situation which is involved by the fact that you are not comparing two things which are alike in kind. That is the difference which immediately occurs to one: that the Long Lines Department is dealing essentially with a transmission problem in the handling of toll service; it is not dealing with a switching problem and it is not dealing with a local exchange service.

I mean that the Long Lines has to do only with the trans- [fol. 6646] mission problem and does not have to do with the telephone instruments or their connections, or switchboards in the local exchanges, or, connections to a toll board. I also mean that I am trying to keep my mind to the things which have resulted from the work in the period in question, and in both of those two groups (the Long Lines on one hand and the associate companies on the other hand) there are tremendous factors which inhere in the work which was done in the period preceding the first year here, and that work has a vast influence on the relative and absolute results, not only on the absolute, but also on the relative commercial results of the two organizations; and I am not competent to appraise the whole thing.

"Q. Because of these developments and improvements in things made over the years, when we speak of a transmitter, for instance, today, save in its most general aspect, we mean a different thing from what we meant when we spoke of a transmitter of fifteen years ago, do we not?

"A. No, not for a large number of transmitters that are in operation today."

If we go back to the days when we had a separate trans-

either for long distance and a separate transmitter for the local exchange, then we would mean a different thing than we do today. That same general idea is sound in respect to many of the things that are used in this art, if you go back far enough.

If I were to build a plant today, it would look like a plant in 1914; they would have many things in common, and I presume to a casual non-engineering observer they might look quite similar in some respects.

In many of the details, the plant of 1914 was different from the plant of 1932. In their essential elements and in their fundamentals of switching and transmission, the same fundamental elements would appear; they have been in the telephone art since its beginning.

"Q. And the things which you would put in today, speaking of them generally, would be better things in so far as their results and service are concerned, they would be [fol. 6647] cheaper things to make, they would be cheaper things to install, and they would be cheaper things to operate, would they not?

"Mr. Blackman: Cheaper than what, Mr. Haight?

"Mr. Haight:

"Q. (Continuing.) Than what went before, at any time you wish to choose.

"A. On that basis, in answering your question, one has to make an assumption as to price and wage levels as they might affect it. I take it that you are referring to the inherent costs on the same basis of the fundamentals of prices and wages.

"Q. My postulate is your testimony.

"A. Yes.

"Q. (Continuing.) That because of this contribution of the Department of Development and Research and the Bell Laboratories, and the similar work done before its creation, they have brought to this industry, both in the Long Lines service and in the work of the associate companies, things that are better, that give better service, that are cheaper to make, that are cheaper to install, and that are cheaper to operate, and that that benefit most largely is to be reflected in the associate companies. That is my postulate throughout all of this examination.

"A. Yes; I see. Well, on that basis I would say that as the result of the work of the Department of Development and Research, that is true. As I understand the question, it referred to all parts of the telephone plant, many of which have not been touched by the work of the Department of Development and Research."

The Department of Development and Research has had to do with transmitters, telephone instruments, wires, cable, conduit, switchboards and poles. It has not in any large measure had to do with the tools with which many of these things are installed. It has not had to do, and certainly not in recent years, with the types of buildings in which we put those things. It has had to do essentially with the electrical parts of the plant. Not in recent years has the Department of Development and Research had anything to [fol. 6648] do with the devices for setting poles. When I speak of tools, I mean types of tools, such as trench digging machines, and all of that type of equipment.

As I envision the future as to the use of the things that have not yet been made commercial, and as to the adaptation of the things we now have to new or better uses, the effect is going to be greatest on the associate companies and more than upon the Long Lines. I mean that, as I look into the future, on many of those things which we are working on at the present time the results are going to be still cheaper things to make, still cheaper to install, still cheaper to operate, and a still better service, and those things are going to appear more largely in the plants of the associate companies.

However, anyone looking ahead in 1923 would have had no right to expect the same thing for the immediate period ahead, because at that time much of this work which has been covered in my testimony of the last two or three days related primarily to the things which were of a transmission character, and which would certainly find their application and have found their first and largest application in the plant of the Long Lines.

In my testimony, when I referred to the Bell Laboratories, I referred to that part of the Bell Laboratories whose expenses were billed to the Department of Development and Research. When I refer to the Bell Laboratories, I mean the Bell Laboratories and its predecessors.

I think, as I explained in the last part of my direct testi-

many, that in an attempt to allocate the expense for a specific and limited period of years to the beneficiaries, particularly when that limited period of years ends in the current time, the application of the expense for the particular year in which the expense is incurred is not only fair, but is the only way in which that allocation can be made.

I do not know whether it is the common method to carry the costs in the development of a particular thing until the work is completed and then allocate the expense to the particular thing on which the work was done when it goes into use. I have tried to indicate that on a very large part of [fol. 6649] this work of ours the value was not in the thing itself, and it would be unfair to assign it wholly to the thing; that the value resided in the collateral effect of the thing. I believe that research and development work should somewhere, somehow, some time, pay for itself, because if it doesn't, it cannot exist. This work about which I am talking must at some time be translated into things, or the values which innere in things. Sometime, certainly, as to that work that does finally come into use, it goes into things, but they may not be values in the thing elements on which the expense was incurred.

I don't know exactly how long we were working on the semi-mechanical and machine switching equipment. It was a long period of time; a very great many years. The work upon the loading coils for open wire toll lines went over quite a good many years; it was probably 15 or 16 years. The work on the machine switching equipment is still going on in a very large measure, and I presume it has been going on for 20 years. The reason that I could estimate the length of time of the work on open wire loading coils is that that work came to a conclusion.

There was a physical embodiment as a result of the machine switching work in Chicago in 1923. I don't know when large, active work on machine switching began, because it began before I was associated with that kind of work, but I should assume that it had gone on for 15 years before that, possibly.

The work on loading coils for toll cables is still going on and has been going on ever since we began to work on loading, that is a period of 30 years, and it is going on in increasing measure at the present time. The same is true of loading coils for exchange cables.

We began the work on vacuum tubes in 1912 or 1913, and that is still going on, and, as far as I can see, will continue to go on. The work on vacuum tubes went on for about two years before we actually used a vacuum tube in repeater work, and the work went on about a year before we had trial installations. There was work on repeaters before our work on vacuum tubes was commenced. Those repeaters were the [fol. 6650] so-called mechanical repeaters, but for the most part they had to do with the attempts to make a telephone transmitter speak to a telephone receiver supplied by a local source of energy. Those attempts, as I understand it, had been made from the very early days of the telephone business.

I have not a clear picture of when we began serious work on the 24 and 26 gauge cable, but it was a considerable number of years ago. The whole history of the lead covered cable art has been a continued attempt to reduce the size and so to increase the number of conductors in the lead sheath; and this fine wire cable development, which is the most recent stage of it, is the work which was done in the most recent years, and was largely made possible by the tools which had been made available to us in other fields of our development and research work. I have not looked up when we started to use cables containing wires that were finer than the 22 gauge, and it is a guess on my part, but I should say that the first beginning was approximately 10 years ago.

The work on transmitters has been going on ever since the work began. I can only very roughly group the results into any period based upon the character of the transmitter, because I am not personally cognizant, nor have I made an attempt to familiarize myself with the very early days and the various kinds of transmitters. Coming to the time which is within my own knowledge, there was, of course, a period of 15 years or more in which the transmitter art, so far as large advances were concerned, practically stood still, when we had the type of transmitter which was commonly used in the desk stands and wall sets, and that period began to merge into the present period some years after we had begun our work in the general classifications that I referred to as 5, 6 and 7. In the earlier period, the changes in transmitter structure were, from an engineering standpoint, of a detailed character, rather than a

fundamental character. Since that time, the changes have been of a more fundamental character.

This new art, which has been so potent in influencing the whole trend of our research and development work, [fol. 6651] started subsequent to 1913 in any large form, because it was at that time that we got the first tools to make it available, and, as I have indicated, the first urge when we got those new tools was to use the tools themselves as things in the telephone plant, and the art of using them as tools for the development of other things may have been delayed a year or so and then commenced to operate.

The work on receivers has been going on ever since the business began.

Work on the hand telephones was started before I came into the business, nearly 30 years ago. The first attempt to use them was made quite a good many years ago, and was disastrous because of the fact that we did not then know how to combine these high efficiency transmitter and receiver units in a solid handle, and we could not degrade them in efficiency so as to combine them. As I have testified, it was only after we had developed the art both as regards the transmitter itself and as to the assemblage that we got our present instrument. My recollection is that they began to go into service possibly six or seven years ago in a small amount. They worked all right in local work over in France and other European countries. I say "all right," but they weren't all right from the standards of American telephony.

The whole basis upon which the Bell System has been built up (and, so far as I know, it is a basis which has carried over into all American telephony) was that the transmitter and the receiver (which are the dynamo and the motor, if you will, of the electrical communication system) should be each of the highest possible efficiency, and uniformly at that high efficiency. The whole urge has been always, over the entire history of telephony in this country, to increase the efficiency of the transmitter and the receiver. As those efficiencies were increased, so that you had more energy given out and less energy required at the receiver, they have resulted in an extension of telephony, because it has been possible by those means to go farther with a given size of connecting wire plant, or to cheapen the wire plant by making it smaller for a given distance. One of the

most sacred and rigidly enforced rules in the Bell System [fol. 6652] has had to do with the standards of the transmitter and the receiver as they are operated in the associate company plants.

Now, the results of that long course of rigid adherence to a principle was to build up a vast local intercity and interstate communication plant which required the high standards of transmission and reception of the transmitter and receiver, and all plant was engineered on the basis that those high standards were in the plant. Any attempt on a large scale, for whatever purpose, convenience or otherwise, to degrade the transmitting efficiency of the transmitter or the receiving efficiency of the receiver, would immediately have degraded not only the service of the person who had those instruments, but everyone with whom he was connected, and there was an impossible barrier to that degradation. The development of these high efficiency transmitters and receivers, used as they were in this plant, in desk stands and in wall sets, was not involved with this characteristic with which they are involved when you associate them together in a handset and rigidly connect them. You can get the effect in a wall set or a desk stand, particularly if you are on a short loop, by the simple operation of putting the receiver in front of the transmitter, touching the two things together, and they will start to howl. You can get it by taking a wall set or a desk stand transmitter and receiver and rigidly connecting them together, and starting them, and they will continue to howl. But we had found that, to bring in the convenience of the handset, we had to solve the problem of associating these very highly efficient transmitters and receivers together in a rigid handle, and having them of such a character that this instrument, which can be used in many positions in which the desk stands and, certainly, wall sets are not usually used, would have very little positional effect. This would not only be used in many positions, but could be used in all services, whether local, long distance or Long Lines.

The reason why this handset was not used in the American system was not because it would not work in giving service; that was not the reason. It would not work in [fol. 6653] either local or long distance service; it would degrade local service as well as any other kind. It would degrade all service.

That service had been engineered to a point when the

phone on one's desk must be one that could be used either in local service or a call to New York City.

The same instrument is used for all service; take this plant here in Chicago: if the plant of the Illinois Bell Telephone Company for some reason or other were divorced from any necessity of connecting outside of Cook County, it would not make one iota of difference so far as the subscriber's loop and trunk plant is concerned, except possibly in the number of circuits that are required in the engineering of that plant today. The same transmitters, the same receivers, the same transmission requirements for sub-station apparatus would apply.

"Q. You know, don't you, Dr. Jewett, that right here in Chicago we had one kind of transmitter, then long distance came, then we put in long distance transmitters because the others would not work in long distance; you know that history in respect to Chicago itself, don't you?

"A. That ancient history was true of all cities, certainly."

When the long distance transmitter began to be used in local service, we had a better transmitter for local service also. When I said that the bringing of the French telephone into our system would degrade the service, I meant not only that it would not work at all in long distance service, but that it wouldn't work at all in local service. It worked in local service in Europe, but it would not have worked in the local exchange plant here without degrading the service to the point where it would have been unsatisfactory.

The local plant had been engineered on the basis of getting the best service at the lowest possible cost, and when you refer back to the time when the long distance transmitter, as you call it, was made standard for local service, the net result of that on the local plant was either to cheapen the local plant in its transmission characteristics, or to extend the range of the local plant transmission with the same [fol. 6654] unit grade of transmission service. At the present time the local plant, so far as its transmission characteristics are concerned, is engineered substantially without relation to its use in long distance service, and the service which is sufficiently good for the local exchange area from what transmitters and receivers you use will give you long distance service over any distance that you want to go.

I don't know whether someone in connection with the American Telephone and Telegraph Company gave a picture of our telephone system by saying that we might look at it all just as one exchange. I never heard that, or, if I did, I have forgotten it. I have heard of Mr. Vail, and have read some of the annual reports put out by the Company when he was President. It has not been the theory of the American Telephone and Telegraph Company for years that the Bell System is regarded as one big exchange and engineered on that basis.. With all due respect to Mr. Vail, if he said that, I don't think I would make that statement.

There was a time when it was proposed to give long distance service by the process of so increasing the power of the transmitter and receiver used in that service that you could give the long distance service. But, as a result of our work, we came to the conclusion that if long distance service as a universal thing in this country was to be largely and economically used, the interconnecting plant between local exchange areas must be of a character which would permit of the service being given through local exchange plants which were engineered for the local exchange area, and that has been done. As a result of that, we have standardization in all local areas in the sense that at any given time, so far as fundamental instrumentalities are concerned, things that are installed in a given kind of plant in one part of the country are the same as in any other part of the country. That does not mean that we are in a static art; those standards may change, and they change from time to time whenever we have made an improvement which makes possible a step forward for all. They are standards in the sense that I have indicated, [fol. 6655] and not standards like the yardstick or the pound, which are invariable.

Certain standards are commonly applied. The transmitter and the receiver, which are the heart of the thing, are the same everywhere, so far as it is humanly possible to make them. Now, that does not mean that we can be sure that the 17,000,000, or whatever number there are, of transmitters that are out are all identically the same. There are obvious variations, through use and age. Nor does it mean that, when we introduce an improvement in the transmitter, we will say, which enables us to make a transmitter with a somewhat higher efficiency, and we are

sufficiently sure of it to start to manufacture it on a large scale, we go out and junk all of the old transmitters. It means that on all new plant and on all replacements that new transmitter goes in, and that in time the average level of transmission efficiency from all sub-stations has been raised, and ultimately all of it, or substantially all of it, brought up to this upper level. The effect of that improved transmission is taken account of by the engineers in engineering their entire wiring connecting plant. They must have standards of transmitting and receiving efficiency if they are to do any engineering work in their wire plant.

In Europe (France in particular), where there were no standards, there was no engineering of the plant, and there could be no engineering, because there was no standard on which to base it. The result was that some subscribers, over whatever wires were put in, got reasonably good service when they would talk to certain other subscribers, and certain others could not talk at all. But what we have aimed at, and what, largely, we have succeeded in doing by engineering which makes the local exchange plant independent of the toll plant, has been to provide a reasonably uniform grade of transmission service for both local and toll purposes with the same instrumentalities.

These same instrumentalities are used in the long distance service, but, as I said, if the long distance service should disappear today, it would not change one iota the [tol. 6656] engineering of the local exchange plant in the City of Chicago, so long as it maintained its present standards of local transmission, except insofar as elimination of long distance service eliminated plant.

The Department of Development and Research is the final judge as to whether things produced meet the specified requirements for new and improved service. In general, but not necessarily, after that judgment has been made, that particular thing is made standard. The exception to that would be that a thing which had been developed by the Department of Development and Research, and found to be satisfactory for the service, was found by the Department of Operation and Engineering not to be desired at the time that it was ready for use, and it might, under that kind of a condition, not be standardized at that time.

In general, the associate companies are advised that a new device has been made standard through letters or bulletins issued by the American Telephone and Telegraph

Company through its Department of Operation and Engineering, and, if it involves apparatus, usually coincidentally by advice from the Western Electric Company indicating the way in which the apparatus should be ordered.

The Bell Telephone Laboratories, of course, is a company which has a capital of $100,000, and there are no dividends paid on that capital. The remainder of the money, which is represented by the plant in operation and the necessities of the Laboratories, is obtained from the owners of the Laboratories by borrowings, on which interest is paid. That interest is a part of the charge which makes up what we call cost. There are two regular rates of interest. For the majority of the money involved it is one rate. Then there are certain recurring borrowings during the year, mostly for short periods of time and varying somewhat in amount, which are at a slightly lower rate. The rate of interest on the main amount is 7 per cent and on this temporary recurring borrowing, it is 6 per cent.

"Q. I understood that the Department of Development and Research in doing what at one place you called intellec- [fol. 6657] tual work, would turn over its study for further study and development by the Bell Telephone Laboratories, and an estimate would be made of the amount to be spent thereon, or some basis of cost. In a general sense, each one of those projects would be budgeted. Did I get the wrong idea?

"A. You are referring now to the part of the development and research expense which is represented by the amount that they pay to the Laboratories?

"Q. Yes."

Possibly a specific explanation of how that is handled would give you what you have in mind. Before the beginning of each calendar year, both the Laboratories and the Department of Development and Research make up budgets, which budgets are approved. Now, those budgets constitute substantially nothing more than the authorization to the two departments to proceed with the year's activities on a certain scale of operation. That is, they are the advice which I, as Vice President, finally get from the President and the Board of Directors, that the D and R can proceed on such and such a basis, organize for that, and the advice which I get as President of the Laboratories that the cus-

tomers of the Laboratories have authorized us to proceed on a certain general basis.

Now, in making up those budgets, which determine the size of our force in large measure, and the size of the force determines everything else, the general scope of the work likely to be done during the year, either for D and R or the Western Electric Company is outlined, and we have a general broad understanding that in this particular field we are likely to be called upon to do so much work in laboratories for D and R. Some of it we know more specifically about, because it happens to be current at the time the budget is made up. If, during the course of the year, a project arises in D and R which requires the assistance of the Laboratories, it falls in one of these classifications that have been previously generally considered, and the requirements of that work and the amount, as to character and general amount, are transmitted to the Laboratories. They, in turn, study [fol. 6658] that particular request and make an estimate both of time and money that it will cost to carry out, and they certify that to the American Company, the Department of Development and Research, in a work sheet which outlines the work, the basis for that work, and the estimated amount that they think it is going to cost to do this thing. That work sheet goes to the Assistant Vice President, and from him to his associates for a check against their original request on the Laboratories. If they agree that it is all right, or if, after consultation with the Laboratories, they modify it and then agree, that work sheet comes back to me, as the Vice President of the American Telephone and Telegraph Company, and if I approve of that work being carried on in the Laboratories at the expense of the American Company, I sign that authorization on behalf of the American Company and return it to the Laboratories, and a copy goes into our D and R records. It then becomes the authorization for the Laboratories to do the work and to bill the expense of the work to the American Company and the authorization to the American Company, or its proper officers, to pay those bills if, as and when rendered, when they have been certified to by the D and R people as being correct. And, in the process of certifying to me that the work requested to be done is not only proper, but as to kind and amount, the examination which is made by our people runs back to the general consideration of work in that whole classification as it was at the time that the budget was made

up, so that I am not put in the position of authorizing work in excess of what we originally had in mind at the time that the budget was made up. Now, many times I do authorize work in a given classification in excess of that which appeared in the original budgetary study, because that general budget, which is approved at the beginning of the year, was not a rigid approval of the division of expense among all of these numerous classifications. There are a great many of these work sheets, on the average, during the year. If I were to give the number, it would be the roughest kind of a guess. I would not say that they run into the thousands. The work sheets might run up between one and two hundred. [fol. 6659] There are a large number of projects that go on. Of course, the way the accounts are kept the number of specific pieces of paper referring to the work are very much greater in the Laboratories than they are in the Department of Development and Research, because of the thing that I testified to a day or two ago; that is, in recent years we have charged the D and R work to classes of work rather than to specific jobs.

Taking both the Department of Development and Research of the American Telephone and Telegraph Company and the Bell Laboratories, if you were to go down there to examine the sheets for one year's work you would find in the Laboratories a very large amount of material, because of the way in which the things are kept up there. How much, I cannot tell, because personally, even though I am President of the Laboratories, I practically never see the things referring to Western Electric Company work which correspond to these things that I have been describing to you for the American Telephone and Telegraph Company. That is carried on directly by the Vice President of the Laboratories with the Vice President of the Western Electric Company. I would think you would be confronted with thousands of sheets containing these various matters.

These studies cover many things, the matters of operation of existing apparatus, and also the improvements of existing apparatus. They also cover new apparatus. I do not think these records are classified on any such basis as that. In the D and R this work is classified in accordance with the classification shown in Exhibit A-114.

The American Telephone and Telegraph Company and the Western Electric Company are billed for the work authorized to be done by them. In general, the majority of the work

billed to the American Company has to do with the fundamentals of things which may underlie apparatus and do underlie operational studies, but even in the billing to the American Company there are certain things where these fundamentals involve the fundamentals of apparatus. Now, conversely, in the case of the billing to the Western, while most of it does relate to the preliminaries of manufacture [fol. 6660] of physical things, there are billings from the Laboratories to the Western which are somewhat analogous to the principal billing to the American Company. You cannot sharply segregate and say that the billings on apparatus go one way and the billings on the other things go the other way. The same is true with regard to the smaller billings from the Laboratories to its other customer, the Electrical Research Products.

Most of the research laboratories that I know of are connected with manufacturing companies, and their problems are the problems involved almost exclusively in the development of things to be sold, but, as I explained at the time my deposition was taken, the research function of the Bell System is a very different thing from that in its larger aspects. The thing which we sell ultimately is not apparatus, but it is service.

In distinguishing between the preliminary development work and the work upon specific things, in so far as the Laboratories do any of the former, it is all one enterprise and in one laboratory, and usually handled that way in connection with other manufacturing concerns. It would be quite possible to have the Department of Development and Research of the American Company and the Laboratories housed in a single housing. As a matter of fact, they do operate essentially as a unit in so far as it relates to the business of the American Company, and I am chief executive officer of the whole operation. One of the reasons for the segregation as we have it at the present time is the fact that a very large part of that division of the work which is done by the Department of Development and Research brings them in such intimate contact with the Department of Operation and Engineering that it would be a considerable inconvenience and handicap to have them separated physically. It is the same kind of a situation which developed many years ago in the laboratories of the Western Electric Company,

which might better have been, from a purely Western Electric standpoint, associated with the factory, but which were separated from the factory at Hawthorne and taken to New [fol. 6661] York, because so much of their work had direct contact with the American Telephone and Telegraph Company.

In relating the expense of the Department of Development and Research over a period of years to the plant investment in the Bell System, procuring a result of $1.89 per year per thousand of investment, the plant figures which I used were given to me by Mr. Crunden. I think I got them from Exhibit A-111. What I got was the average plant during the period in question, which I related to the average expense for the same period.

(Defendants moved to strike the answer in regard to the $1.89 cost, inasmuch as it was based upon Exhibit A-111, for which a motion to strike was pending. Court ruled that the motion to strike this answer should be argued together with the motion to strike Exhibit A-111.)

"Q. You gave five classifications of the work of development and research. One of them was the work of supplying information to properly install new plant. Does that cover the specifications for installation of plant items by Western Electric?

"A. No, that is not what I had in mind."

What I had in mind was the information which was given by D and R to the associate companies, either directly, or, more generally, indirectly through the Department of Operation, to enable them either to install plant or to see that it is properly installed. It did not refer to information to the Western Electric Company in regard to the installation of central office plant. It did not necessarily have to do with directions in relation to items produced by the Western Electric Company. It may have to do with such items, but I would not say that it almost always has to do with such items with some exceptions. For example, in connection with all inductive interference matters which involve the installation of the wire plant of the associate company in its relation to the interfering plant, it has little or nothing to do with the Western Electric Company. It may have little or nothing to do with the current relation with the Western Electric. It may have to do merely with the rearrangement of existing

[fol. 6662] plant. What I had in mind, I should think, generally did not have to do with apparatus manufactured and sold by the Western Electric Company. It does have generally to do with the installation of the items in the plant account of the company, because all of our work primarily deals with physical things. But, to give another illustration which is closer to the Western Electric: in the early years of the telephone repeaters and in the improvement in telephone repeaters as they have come along, and with the introduction of carrier, the thing to be installed was a piece of apparatus made by the Western Electric Company. The information which we furnished to the associate company was not concerned with the installation of that thing by the Western Electric Company, or possibly not even by the telephone company as a specific thing, but it had to do with its relation to the balancing of the plant and the kind of plant on which it could be used, the kind of information which the telephone company itself must acquire from us or somebody else in order to utilize this physical thing which may have been made by the Western Electric Company.

If the telephone company had not had this information from us of the kind I refer to, it would have required more than engineering in the building of a new plant. It would have required the acquisition of new engineering knowledge. It is that new engineering knowledge which I had in mind as being furnished by us to the associate companies. After they have got it with regard to any particular thing, if the art does not change, it is not a continuing thing that we do; it is the thing that we do at the time that the thing becomes a new factor in the plant; it is to give the engineering departments of the associate companies that new information which they must have to operate.

It would be necessary for the engineers constructing a new plant to have that information and it would go in as a part of the engineering cost of constructing the new plant if they acquired it. When the associate companies get that information, however, they do not pay a specific charge for it. We never bill anybody for that kind of work. I do not mean that [fol. 6663] it is done for nothing, but what I mean is that that kind of information is not billed to the recipients of the information as a specific billing; it is one of the services under the license contract.

In respect to these five general classifications of the work of development and research, I am not able to tell the amount

spent in respect to each, because those are not classifications in connection with the Company's business, but are merely classifications of the way in which I presented the illustrations.

I have forgotten exactly what I had in those several classifications, but I think it is safe to say that there is no sharp line of demarcation between them, although, as I remember giving them, they did relate to rather distinct kinds of things given by way of illustration. The specific items of expense in Exhibit A-114 that I have included in Exhibit A-115, under the column "Transfers to Other Departments including Patent", I think are all as indicated by the notation at the bottom of the sheet. Take the year 1930 as an example; they are all marked by asterisks. On the 1930 sheet is an asterisk under "Engineering Services, Ship-to-Shore Radio", followed by the legend, being the last entry upon the sheet, "Expense Chargeable to Other Departments of the A. T. & T. Company". Then the reference goes up to the nineteenth item, "Engineering Service", and under that indicates "Ship-to-Shore Radio".

There is not included in Exhibit A-115 any intra-departmental charges. There is no intra-departmental billing in the D and R. There is no inter-departmental billing for the normal functions of the department.

The deductions shown on Exhibit A-115 were made only for the purposes of allocation. Those deductions in those two columns were made to give a net balance of expense incurred directly or by billing from the Laboratories which appears to me to be the proper amount to attempt an allocation of. I had the figures on Exhibit A-115 compiled and went over them shortly before coming out here on this trip. [fol. 6664] While I have been here, I have rechecked the validity of the items in the classification "Non-License Expenses" against the original records, to make sure that I agreed that these deductions which had been found for me were proper things to deduct as non-license expenses. We have been working on the figures on Exhibit A-115 for a considerable time. This particular printing of that exhibit that I have before me certainly was within the last few weeks. These figures were never given to Mr. Heiss of the American Telephone and Telegraph Company by me. As far as I know, they were not given to him by anybody.

"Q. I understood you to say that the telephone industry

is not subject to the economic principle of reduced costs due to mass use, and that the Department of Development and Research expenses are to produce lower unit costs to offset increasing costs, due to increase in number of subscribers, is that correct?

"A. No, I think that is an expansion of what I said."

It involves what I said, but I think I said that the telephone company did not have the element of mass production entering into it in the same way or to the same extent as it is commonly assumed to enter into mass production as a means of bringing about an inherent unit reduction in the cost of the things produced when you increase the number of them. I went on to indicate that there were some factors in connection with the telephone business which inherently operated in a directly opposite fashion, but I do not think that I ever said that no element of mass production appeared in the telephone business, because that is certainly not true with regard to the manufacture of apparatus. Mass production in a factory, whether it makes telephone apparatus or whether it makes any other apparatus, has that factor in it. What I said, and what I attempted to illustrate was that in the plant required for serving increased numbers of subscribers, there were certain factors which brought about, under certain conditions, the inherent requirement of a greater and more expensive plant per subscriber than under other conditions, and I illustrated it by the inter-office trunk plant and central office equipment of exchange areas as they [fol. 6665] grew from the capacity of a single office to the requirements of two or more offices.

I think, considering the toll broadly to include both local and longer distance toll, that that same factor appears under certain conditions in the toll plant, but not to anywhere nearly the same extent that it does in the local plant, because the problem of toll is either primarily or more largely a transmission problem and not a switching problem. That particular factor comes in because of the switching element, which is so predominantly local exchange. What I just said about toll would apply to the Long Lines plant of the American Telephone and Telegraph Company. Where the factor applies, that particular factor is concerned with switching, and, to the extent that the Long Lines service is involved in switching, it there appears also. I have not the slightest idea what proportion of the Long Lines plant is involved

in switching. I should say it was a very considerable portion.

The work of developement and research, in my opinion, had an effect to increase the number of users of long distance service. It led to an increase of the fields of use of the Long Lines. I mean by the fields of use, new services. One of the fields is one to which I referred this morning, the switched typewriter service, which our work has opened up, both to the Long Lines and to the associate companies. Some of the others are: the field of picture transmission, which our work has opened up to both the Long Lines and the associate companies, but which so far, with one exception, has been made use of only by the Long Lines, to its very considerable financial cost. In the radio field, of course, it has opened up the possibility of giving telephone service to Europe by radio plant furnished by the Long Lines, but that is not a new field of use, that is an extension of telephone service. There is one thing which, while you might call it telephone service, of course, is not telephone service in the ordinary sense. It is the provision of the program transmitting circuits which are used in conjunction with radio broadcasting. There is a field which has been opened up to both the Long Lines and [fol. 6666] the associate companies and is availed of by both. I do not think of any other fields at the moment. There have been tremendous extensions, both in the Long Lines and in the associate companies, in the use of leased telegraph wires, but that was a service which is old in the telephone art, it really is not new. That is a considerable field; it has been. I do not know just what it is at the present moment.

When I was asked the following questions and made the following answers:

"Q. Now, take the class of work which you have referred to as protection of your system from interference by electrical currents or trolley wires or high-powered electrical transmission lines.

"A. A very large part of that has no connection whatever with the manufacture of apparatus. Some of it has connection, particularly where it relates to protection from things like lightning, but where it relates—and this is a very large part of it—where it relates to the work which we do in connection with the inductive interference, or electrolysis, it has no substantial connection, practically no connection at all with the manufacture of apparatus.

"Q. Is a large part of your expense under that classification directed to that kind of work?

"A. Yes, I should say 95 per cent of it."

I think what I had in mind was that the 95 per cent applied to the whole classification, and I think the answer is correct, because (while that title has interference prevention and protection and I have made a reference to the things concerned with lightning as a qualification to indicate that in that it had to do with apparatus) very little expense is incurred by the Department of Development and Research in that field where apparatus is involved. The expense in that field, the development field, resides primarily in the Laboratories, in the construction, development of apparatus, and that expense is not billed to D and R, but is billed to Western; it follows the apparatus. I think I had in mind qualifying the original statement that it did not relate very much to apparatus, simply to indicate that there was in the [fol. 6667] designation a thing which did involve apparatus. The 95 per cent, I still feel, holds against the whole classification, so far as expense and application in the Development and Research Department is concerned, because the amount which relates to the apparatus item under lightning protection is so very insignificant.

In Exhibit A-116 (that is the one "Maximum Amount of D and R Expenses Allocable to Non-Bell Sales of Western Electric Company (Excluding Special Commercial Products)"), I classify all the development and research expenses into apparatus and lead covered cable. The same qualification which I made with regard to the allocation of expense against associate company and Long Lines beneficiaries runs in these classifications, that is, work of our department done in the year 1923 does not, in general appear in the business of the Western Electric Company in that year. It may appear at some later date. But, in order to make this allocation, I had to assume that it did apply in that year and I made the further assumption, as I testified to, that all of our work which we did ran to apparatus, and I testified that I thought that was a very liberal estimate, because so much of it has no concern, so that I felt that I was making a maximum allowance of the expenses of our work in connection with the Western Electric telephone apparatus and lead covered cable. In a word, what I assumed was that, as a result of our work in the telephone apparatus and

lead covered cable field, the Western Electric Company developed a large number of baskets of things, all alike to each basket, and that they sold some of those things out of each basket to the Bell associate companies, and a very much smaller amount of things, but still some out of each basket, to non-Bell customers, and that if you were going to make a deduction from the benefit of our work on account of this non-Bell sales of these identical things, it was fair to assume that a proportionate part of that deduction was represented by the relation of the non-Bell to the Bell associate sales.

Save for this question of time which I have explained, this exhibit assumes that all of the development and research [fol. 6668] expense that I have allocated here to particular years has led to the manufacture and sale of things by the Western Electric, which is an over-liberal assumption. I apportion each of the expenses of development and research between the non-Bell customers on the one hand and the Bell customers of the Western Electric on the other hand entirely on the basis of sales. I do not think that I could testify as to whether I was the originator of that idea or not. In order to answer the question before the Court of attempting to make the allocation of expense, it first appeared to me to be an impossible one in much of our work, because of the fact that it was, in its very nature, of a kind which can only be applicable many years in advance, and at first I felt, except with a broad general yardstick, it could not, class by class or year by year, be done. I and my associates had numerous considerations of how we could do these kinds of things and out of it grew, so far as this particular item is concerned, this, which seems to me an entirely reasonable way of doing it, a very large over-emphasis of amount of deduction which should be taken on account of these non-Bell sales. I will take the full responsibility for the use of this in support of my judgment. I think if I had simply been told that I had to make an allocation with this kind of a credit given, I am quite sure I would have come to identically this kind of an answer. I think that that sales basis is a liberally fair one under the circumstances. None of my associates disagreed with me in thinking it was liberally fair.

When it came to distributing it among the various entities in the Bell System, I abandoned the sales method and put it on the basis of what they already had, because I was

dividing the different kinds of things; I had a different denominator. I was allocating costs in both cases.

"Q. And in the first case, between the non-Bell and the Bell customers of the Western Electric, you took it on the sales basis, and you considered that a fair basis, applying it to the goods that were sold? That is right, isn't it?

"A. I did,—the Western Electric Company did not,—because there was not a tremendous accumulated investment in [fol. 6669] the things as of that time. The only things that we had at that time were the things that were in transit.

"Q. But when you came to dividing them among the various Bell entities, you used this kind of a philosophy; that if Mr. Bracelen has a 10,000 acre farm, and I have one of ten acres, and we hire you to develop a rat-trap to put in each of our granaries, you will charge him in proportion to the value of his ten thousand acre farm, and me in proportion to the value of my ten acres, that is your philosophy, isn't it?

"A. Well, otherwise I would assume you had more rats per acre on your farm.

"Q. Then that is the sales philosophy again, isn't it, your rats per acre?"

I have stated very positively, and it is my firm belief, that any allocation for any purpose of the cost of this work of ours has to be related to physical things, as the fairest way of doing it, because it involves physical things. Now, in the one case I was trying to make an allocation for the sake of making deduction which was not going to be applied to anything concerning the Western Electric Company, but it was going to be applied to a deduction from our expenses, because a benefit had arisen to somebody who was not one of those whom I was ultimately going to divide it among. I still have to stick to my physical things. How was I going to, year by year, get that amount to be deducted without relating it to the physical things which I found at that time? I had not the slightest means of knowing what the total amount of all this stuff was that the Western Electric Company had sold to everybody over that period. The only physical things I had were the things which were in transit and through the Western Electric Company at that time, and it seems to me that of the factors I had available, the fairest ones which related to physical things were measured by the sales of those physical things.

I did not follow the principle that cost of development and research should follow the goods when I came to make this allocation of expenses among the units of the Bell System, because, as I have already tried to explain, any at-[fol. 6670] tempt to make an allocation among the associate companies and the Long Lines year by year, for a definite period of years which terminates at the immediate present, when none of our work of the last year has appeared in the plants, or substantially none of it has appeared in the plants, and when at the beginning of the period I obviously cannot take ratios of something in the years preceding because the things do not apply, I am limited, if I am going to have an allocation year by year, to the ten or eight or ten things which I found in that interval.

"Q. Did you try this consistency of applying that same doctrine in allocating between Bell and non-Bell, relating to Western Electric sales?

"A. Well, how can I? I don't know all of the things in the non-Bell field. All I know is what the Western Electric Company has sold in the non-Bell field."

"Q. But each one of these had an investment, each one of the non-Bell customers, each telephone company, had an investment primarily ascertainable?

"A. But it was an impossible task for me to find out what that was for all of their customers.

"Q. But it was not an impossible task when it came to a distribution in allocation of these expenses within the Bell System, to find what the sales of goods were there, the same as it was to find what sales were to Bell and non-Bell in making that allocation, was it? You had that information, didn't you?

"A. The sale of goods?"

Of course, I made an over-liberal estimate here, as I thought, for the non-Bell sales of the Western Electric Company, but a vast part of our effort has nothing to do with this when it comes to the associate companies.

[fol. 6671] May 12, 1932.

The Western Electric Company was never billed for the amount proportioned to the non-Bell business of the Western on Exhibit A-116. We make no billings of the expense of development or research for development matters. The portion of that expense which I have allocated to the non-

Bell business was never paid for by the Western Electric Company.

The figures appearing on this exhibit (A-116), representing the sales figures on the non-Bell business for the period beginning with 1925, represent the sales of the Western Electric Company to their customers, and, in so far as Graybar was a purchaser of telephone apparatus or lead covered cable, they represent the sales to it. They do not, as I understand the figures, represent Graybar's sales of those things to the ultimate consumer. The price would be the price to Graybar and the distributors.

The development work of the Department of Development and Research, I assume, only goes to a portion of the 100,000 items and 20,000 combinations of the Western Electric Company. I do not know what all of those items are, but I think it would be a fair assumption that there were a considerable number to which you could apply little, if any, of this cost of which we are talking.

"Q. And of those 100,000 items, and 20,000 combinations, I suppose it is a fair assumption that the non-Bell sales are only of a portion of those items, is it not?

"A. I should think that was a fair assumption in these classifications; yes, sir."

I do not know to what portion of the 100,000 items the development and research expense in a given year applies. I do not know what per cent of those items on which development and research expense was had, applies to the Bell items, and to the non-Bell items.

"Q. Now, by apportioning among the Bell customers on the basis of plant, you assume, do you not, that the Bell customers each purchase a cross section of the sales to all of the Bell customers?

[fol. 6672] "A. On the average of the total, yes; that is the assumption."

That is the assumption in each year. I do not make that assumption and lump it over the entire period of years, but in the first allocation which I made, and which I think is the best allocation, of course, the net result is the same, whether you take it year by year, and add the results together, or whether you take the average of sales over those years and apply them. It does not necessarily assume an average in the various sub-classes of goods dealt in. The allocation

which I made was based on percentages of our work, and not to the classes of goods. I do not entirely leave out of consideration the goods to which the result of our work may be applied, but I leave it out of any detailed attempt to allocate because it is quite impossible for me to do that for the reasons that I have mentioned, that the work, or the effects of the work, appear in so many different classes of goods.

I presume that the different classes of goods are purchased in different quantities in a given year and also the purchases vary throughout the year considerably.

In Exhibit A-116, I am not assuming that the non-Bell customers paid, as part of the purchase price of the plant items which go into their capital account, for any part of the development and research, which are the figures which we are here concerned with, because there has never been any billing of that expense. They are undoubtedly paying for their proportion of the development expense of the Western Electric Company in the creation of the things which it sold. I do not think that the benefit of any items of development and research reflects itself in the price charged by the Western Electric Company to the non-Bell customers, except in the extent to which that benefit has made it possible for the Western Electric Company to sell this type of product at a lower price than they would otherwise have been able to do. I do not say that the Western Electric sells to non-Bell customers for a price that is less than the price to Bell customers, by the amount of development and research expense that may be allocated to those goods.

[fol. 6673] So far as I know, the development and research expense reflects itself in the goods that are sold by the Western Electric Company to non-Bell customers only in its effect, and in the manner which I have indicated in the answer to the question just preceding.

The results of the work of development and research are reflected in the goods sold by the Western Electric Company to non-Bell users and it is for this reason that I assumed that it was fair to make an allocation of benefits.

"Q. And if the results of that work as far as prices are concerned, are found in the selling price of the Western Electric Company to the non-Bell customers, in that case it goes to capital accounts in respect to those customers, while in the case of the Bell customers it goes as an operating expense by reason of the license contract, does it not?

"A. Well, I cannot answer that question because I do not know; I am not an accountant, and I do not know how people keep their books."

In Plaintiff's Exhibit A-116, I do not include in the non-Bell field special commercial products; those are specifically excluded, as indicated in the heading of the exhibit. I do not, in any of the exhibits which I have presented, consider that any portion of the development and research expense is allocable to special commercial products. I do not do that for two reasons. First, that if any were included, I would not know how to make up an allocation, but that is an incidental reason. In the second place, because to whatever extent the benefits of the research and development work of the American Company are found in the special commercial products, those values have been paid for in ways other than by an allocation of the credit for expense of development and research.

The special commercial products which I have in mind are essentially the non-telephone and telegraph things manufactured by the Western Electric Company, which are sold and distributed either through Graybar or through Electrical Research Products. They are such things as the talking motion picture equipment, both recording and repro- [fol. 6674] ducing, the phonograph devices, public address systems, and any of the things which are founded on the same fundamental considerations which underlie telephone and telegraph apparatus, but which do not have a use, or only an incidental use in the plant of telephone and telegraph companies. They are things which are for use in fields outside of the communication field—radio. Those are the results of development and research work. I said that there were two reasons why I did not take them into account in my allocations, of which one was possibly an incidental reason; that is, if there were values there which should be considered in the allocation I did not know how to make that kind of allocation, but I said as the second, that is, those values have been taken care of in an entirely different way by the payment of royalties to the American Telephone and Telegraph Company by the Western Electric Company.

In making my allocations for the Bell portion of the development and research expense between the associated Bell Companies on the one hand, and the Long Lines on the other hand, on the basis of plant investment, I assume

that the problems of the exchange and the problems of the Long Lines are in some respects identical, in some respects similar and in some respects quite dissimilar. So far as the fundamentals are concerned, and this is increasingly true, the more fundamental is the type of research and development work, they are similar. As you get toward the part of research and development which is more specially directed to a particular end, the dissimilarity increases. Those differences are not taken into account in the allocations which I take into consideration for this very difficult thing. They were taken into account in the attempt to check the results of that preferred method by utilizing these artificial classifications of our analysis of expense accounts, and they are reflected there by the fact that different kinds of items are used as the basis of allocations in those classes.

I am only familiar in a general way with the contracts under which the royalties from the Electrical Research Products and the Western Electric Company, to which I [fol. 6675] referred a moment ago, are provided for. The general basis is that the Electrical Research Products pays, or the Western Electric Company pays, to the American Telephone and Telegraph Company, a percentage on the sales price of apparatus which is sold for use in this special commercial products field and also that in some cases (I am not sure whether it is in all cases, but I think it is) where royalties for use of these kinds of things are paid to Electrical Research Products or the Western, a portion of such royalty is paid to the American Company. I am not familiar with the exact details of how that is worked out. I presume that there is only a small number of contracts between the Western Electric Company, American Telephone and Telegraph Company and Electrical Research Products. I am not sure that they are all in the form of contracts, they may be in the form of an interchange of letters.

The Western Electric Company and Electrical Research Products pay no compensation to the American Telephone and Telegraph Company for the benefits of the research and development work of the American Company which applies on business to the associated companies. I do not know why it was that the American Telephone and Telegraph Company did not adopt the same method of compensation for its development and research work on sales of goods to the associated companies; it goes away back; it goes far back of my time.

The percentage figures in column 4 of Exhibit A-117 were given to me by Mr. Crunden and are in evidence on this case.

"Mr. Haight: We wish, if your Honor please, to note a motion at this time to strike, in respect to that, for the reasons given in objecting to Crunden's Exhibit A-113."

In the first exhibit which I put in as the summation of the allocation divided down to the Chicago area, in making my allocation of the Chicago area I considered it as a unit made up of exchange plus toll on the one hand, as against Long Lines and exchange and toll for the balance of the System. The figures in the last column (column 5), which are expenses allocated to the Chicago area, are the result, [fol. 6676] first, of taking out the benefit to the non-Bell sales and then allocating the remainder to the Chicago area in the ratio of its plant investment to the total plant investment, and in that sense they take whatever plant is found in the Chicago area and relate it to the total plant, both local exchange, local toll and long distance toll plant of the entire System. In the Chicago area there is included whatever plant is in the Chicago area, both plant used in exchange as well as in toll. On the other hand, it is the Long Lines, plus both exchange and toll plant, referring to use of all of the other associated companies. I cannot, for the reasons I have stated, separate the expense of development and research for the Chicago area allocating to toll plus the Long Lines on the one hand, and the expense allocable to exchange on the other hand.

On Exhibit A-118, on the sheet for 1927, the per cent that I have allocated to Long Lines, in the second column of figures, for central office systems and apparatus, is 4.5 per cent. That is central office equipment. That is made because of the long distance toll boards and the fact, as I understand it, that on the books that portion of investment in repeaters, which is large in the Long Lines and which does not relate to the fundamental things referred to below, is classified as central office equipment. I do not know what the board-to-board theory is.

"Q. Well, you assumed that as far as the Long Lines are concerned, they end at the toll boards, and you did not include in Long Lines anything in the exchange plant that should be allocable to Long Lines. That is the basis on which you have arrived at this 4.5 per cent in regard to

the first block, central office systems and apparatus, is it not?

"Mr. Blackman: Just a moment, Doctor, just a moment. I object to that. I think that is introducing a pure question of law. The witness has stated that he has dealt with the plant owned by the Long Lines and the plant owned by the other companies. Now, of course,——

"Judge Wilkerson: Well, you understand his answer to be this, then, that in determining the part of the aggregate [fol. 6677] plant which is owned or which is represented by the Long Lines, he has not included any percentage of the plant of the local companies.

"Mr. Blackman: Yes, certainly. His answer is perfectly plain.

"Mr. Haight: All right.

"Mr. Blackman: And may I say——

"Judge Wilkerson: We all understand it alike, then.

"Mr. Blackman: May I say right here, if your Honor please——

"Mr. Haight: That answer satisfies us.

"Judge Wilkerson: I so understand him.

"Mr. Blackman: Yes.

"Judge Wilkerson: I so understand his testimony.

"Mr. Blackman: Yes.

"Judge Wilkerson: He has not gone into——

"Mr. Blackman: No.

"Judge Wilkerson (continuing): —the question of how much of the value of the local plant is to be taken out of the local plant and put over into Long Lines for the purpose of making these different allocations.

"Mr. Blackman: Right.

"Judge Wilkerson: He has dealt with Long Lines as he finds it.

"Mr. Blackman: Yes.

"Judge Wilkerson: And with local plant as he finds it.

"Mr. Blackman: Certainly.

"Judge Wilkerson: And as to these other theories, he leaves them to the court.

"Mr. Blackman: Yes, sir, and whatever the court determines the allocation to be, will allocate the proper amount.

"Judge Wilkerson: It may be that these figures which he gives are subject to some correction, and if after considering it, the court will say that the percentage of local

lines should be put over into the Long Lines, it might increase that.

"Mr. Blackman: Yes, sir, and the way we have treated it is allocating some of them to the Long Lines, because we [fol. 6678] have allocated a part of our total expense, including the license contract payments, to the Long Lines.

"Judge Wilkerson: Well, your tables show the basis on which they are made, do they not?

"Mr. Blackman: Yes, sir, and whatever basis the court takes will automatically allocate this.

"Judge Wilkerson: I understand.

"Mr. Haight: Of course, we are not forgetting that the Supreme Court has already taken a basis."

In item 4, on the page for 1927 of Exhibit A-118, I allocate nothing to Long Lines. The first subheading under Item 5, on the same sheet, which is "Voice Frequency Telephone Equipment and Circuits", I should not think has to do with toll systems only; I would not say so. I do not see why that should apply. Voice frequency telephone equipment and circuits might apply to any part of telephony. I think our work applied to things other than toll systems. Without having examined in detail all of the different things that were done in all of the years to find that there was a year in which they did not apply to all, I would say that in all the years the work under this subhead applied to all. In making my allocations on my exhibits, I did not know whether it did or not. This classification is one which, as the table indicates, is lumped with the two following ones and all of the matters referred to in all three of these classifications are of such a fundamental character and, in many cases, are so remote from the immediate application of the plant, that their benefits, direct and indirect, are found in many, if not all, of the other classifications and in proportions which make it impossible for me to allocate them narrowly against classes of plant and conditions of use. The specific application of the work under the next subhead, "Carrier Telephone Equipment and Circuits" (which is a very new work), at the present time has its present-day uses only in toll lines to any considerable extent. But it is a character of work which, because of the reduction in the length of the lines over which it is economical to employ it, is approaching and will reach the place of a pos-

[fol. 6679] sible large use in the local exchange area. All of the work which relates to transmission in its initial specific application, where there are very new things, almost inevitably finds its first direct use in toll service and grows down into the local exchange service, just as the great bulk of all work relating to switching, which is fundamental in character, follows the reverse course.

I think as a broad statement that most of the things as things, which I have grouped under items 5, 6 and 7 as being of a more fundamental nature, have so far found use in the toll service. It is not true of all of the items, as you can see by going down the list. Take in classification 7 (Apparatus), which on this sheet happens to be a small item; that sort of thing, I presume, would be found, if we could analyze it, to be as much or more in the local exchange thing. Presumably the next item similarly. Loading coils have been used enormously in the local exchange area. But, in general, the newer things, as things, have appeared in toll rather than in the local exchange area; I am referring now to items 5, 6 and 7. Special commercial products have come substantially very largely from those classifications 5, 6 and 7, plus, possibly, something out of classification 4, and, in so far as it involves things used in switching, out of classification 1. That, however, is a relatively small matter. The main values have come out of classifications 5, 6, 7 and 8.

Uses that have come out of these classifications have been largely in Long Lines and in the toll plant of the associated companies. Not all of those uses, as I have indicated, are benefits to the Long Lines. Some of them have been serious burdens to the Long Lines. All of the radio uses and all of this picture transmission of classification 5 have not been benefits but quite the reverse.

I am not competent, I think, to testify accurately on whether the benefits that have been derived as between Long Lines and toll have been mostly to the Long Lines, because some of these uses in the local toll plants have been extremely large, as, for instance, the case of certain of the carrier installations, where in the latter types of carriers, [fol. 6680] they practically all have gone into the plant of the local companies. Further, I am not competent from my knowledge to testify to the relative benefits of, say, such a thing as loading, where there has been an enormous usage

in the plant of the associate companies. Broadly speaking, these devices, as classified in items 5, 6 and 7 in Exhibit A-118, have, in general, found their uses first in the Long Lines, because of the fact I mentioned that these new things of transmission, when used as things and when in the stage of being crude and expensive, are, because of the value or the cost of that kind of service, first employed there. Oddly enough, some of these things that we are talking about found almost as early an application in the toll plant of the associate companies as they did in the plant of the Long Lines, as, for instance, such things as carrier; but, if I am not mistaken, the second installation of carrier was on the toll lines of the associate companies.

"Q. And that would be with companies over many states, would if not, and not in a concentrated area like Chicago, is that not true?"

That kind of thing would not be likely to happen in a concentrated area like the local exchange area of the City of Chicago, unless by chance there happened to be some very peculiar condition existing. However, it would occur on the lines of associate companies of considerable length. My understanding is that the Long Lines did a large intrastate toll business within the territories of the licensees prior to 1925, but how large it was I am not in a position to state, as I do not know. I know that short-haul toll business was more a part of the Long Lines before 1925 than it was after 1925. I do not know when this 40-mile limit was instituted.

The Long Lines have what are known as full or part time telephone subscribers, but my understanding is that the instruments which these subscribers use in availing themselves of that service and the plant which they use in reaching the terminals of the Long Lines are the same local plants which they use in connection with their other telephone service. As I understand it, the Long Lines does not [fol. 6681] put in special sub-station terminal equipment which is connected only to the Long Lines' plant. In that sense, the Long Lines does have subscribers, both telephone and telegraph. The American Telephone and Telegraph Company has direct subscribers in the sense that they have made an arrangement with people to furnish a service which the Long Lines proceed to furnish with the help of the

associate companies and for which the associate companies, as I understand it, are remunerated.

I did not intend to say on my direct examination that the rate case expenses are allocated to all of the licensees. So far as Development and Research Department expense in connection with rate cases is concerned, it becomes simply a part of our general expense. No attempt is made to allocate or apportion such expenses. The only allocation, so far as I know, that has ever been made of these expenses is this allocation which I have made in an attempt to arrive at a figure. Since they are a part of the general license contract services, in effect they are pooled among all of them.

The expense of the Development and Research Department does not include expense incurred by the American Telephone and Telegraph Company in purchasing licenses or patents from owners outside of the Bell System. The only item referring to patents there has to do with internal expenses in the Bell System and that is transferred out of my department into some other, but it relates only to expenses which are charged to that general classification and which are incurred by our own people.

"Q. Development and research work, let us say, is done upon two items during one year, and the cost of each is $1. One of those items is used immediately, and the other item is not used for nine years. Now there is the simplest situation imaginable, too simple to actually occur, of course.

"Now, what I am trying to get at is this: when you take the expenses for a particular year, you ascribe those expenses to that year, but you do not thereby make any division as to results in uses, do you?

"A. No.

[fol. 6682] "Q. Now in looking at your allocations, how shall we size them up? Shall we say that we have distributed those benefits in use over the entire period, or would you say that there is any relationship between the allocations which you have made and those year by year results?"

I think I can give the clearest indication of the base on which I worked by taking as an example the year 1931. Take the last allocation in that book, the year 1931, the year just passed, in which a large over-all expenditure for research and development work was made. Now I have

already testified that in my judgment the fairest way to attempt an allocation of that expense between the several corporate recipients of that benefit is to apportion the net cost of the work, after deductions and allowances, on the basis of the plant values, because this work relates to physical things, which are plant. Now, what base have I on which to apply this allocation? I obviously have not the base of a plant ten years hence, because I know nothing about it, nor five years hence, nor one year hence. I can guess, but I have no base. I obviously cannot apply that base to a year preceding the present year, because I would apply a future condition to a past situation. Consequently, I am driven between those two alternatives, to the one gross base which I have available, which is the size of the groups as they exist at the present time, namely, the basis of the relative plant investments as of the year in which they occurred. And the same pertains with regard to every year back.

Now you might argue with regard to the earlier years, taking the year 1923, that eight years have elapsed, and that I consequently could apply a better figure in regard to the allocation to the year 1923, because of the fact that I have lived eight years beyond that. I might admit that that was so, but if I admitted that, and did it, I would be in trouble with all of the subsequent years, because it would force me into an assumption as to what was going to exist at some time in the future. So that the allocation has been made on both bases, both on the basis which I think is most fair when we come to consider a character of work of this [fol. 6683] kind which is dealing with the future, and also in the attempt which I made to check that against these artificial classifications by taking each year, year by year.

I have here a memorandum which was prepared for me some months ago, showing the total expense incurred under the classification Radio by the Department of Development and Research for the years 1910 to 1931, inclusive, which, of course, includes both the directly incurred expenses and the expenses billed by the Bell Telephone Laboratories or its predecessor, the Western Electric. I have forgotten who prepared this memorandum. I have no reason to doubt its accuracy. It was taken off from our records in the regular course of business. It is something that was prepared in my department and under my direction and I am satisfied with it. I have not gone back and personally checked it

against the figures but I am satisfied with it. It is the kind I use every day in the conduct of our business.

(Which said document was marked for identification as Defendants' Exhibit D-93.)

The pencil marks on this exhibit are just my notations; summations of some sort or other.

"Mr. Haight: Yes, and the pencil notations there will be disregarded."

The items of expense appearing on this sheet (D-93) relate to the items of main classification 6 and its sub-classifications. Of course, in any particular year the expenses under some of the sub-classifications are different from others, because in this year I am looking at, which is 1927, there are some items on here which existed at that time, such as ship-to-shore, which did not exist in the earlier days. But, in general they relate to the work of that main classification and I am not in a position at the present time to make any finer division than is shown in the last column of this sheet.

As I have stated on two or three occasions, the Long Lines has run its radio service at a loss. In saying that, I included as to plant the Long Lines' investment in the radio plant utilized or employed in the giving of the transoceanic service; that is, the transatlantic, the South American, Bermuda, Central American and Hawaiian services, and the [fol. 6684] radio plant involved in the giving of ship-to-shore service, but did not include investment in the wire lines which connect those radio plants into the main network. I did not include revenue from leased lines used in broadcasting service; the figures that I gave relate strictly to the radio telephone service of the American Company. I understand that the revenue from the leased lines used for broadcasting service is a large gross revenue, but I do not know what the net revenue is. I did not include any profit of the Western Electric Company or of the Electrical Research Products Company on the sale of vacuum tubes; I included merely the plant investment of the Long Lines in its radio plant. There is no relation between the radio plant and the sale of vacuum tubes or transmission for broadcasting.

I have not in detail the figures of the loss incurred in the ship-to-shore and transatlantic services. I gave somewhere

in my testimony the rate of loss at which the service was being conducted as of two or three months ago, which was, at the time, about $600,000 annually. They are the only figures I have. The best way to check that, if it has to be checked, would be to get someone from the Long Lines Department who is conversant with the details of those figures.

The figure which I used with regard to the investment of the Long Lines as of January 1, 1932, in its radio plant was approximately $5,000,000. Specifically, the figure which was give to me and which I have here is $4,947,000. The figure which was given to me as the rate of annual operating loss on that service was approximately $600,000. I do not have with me the figures on the gross earnings and the expenses.

By Mr. Goldstein.

"Mr. Goldstein: Doctor, there were furnished—I would like to identify as Defendants' Exhibits D-94, D-95 and D-96, the sheets showing the expense of the Department of Development and Research for the years—1920 being D-94, 1921 being D-95, and 1922 being D-96, those sheets comprising the expenses of the Department of Development and [fol. 6685] Research of the American Telephone and Telegraph Company, and that portion of the expenses of the Bell Telephone Laboratories which is chargeable to Developent and Research, which sheets were furnished to us by the American Telephone and Telegraph Company.

"The Witness: These are——

"Mr. Goldstein: Your exhibits.

"The Witness: These are photostat copies of the sheets corresponding to that?"

Redirect examination.

By Mr. Blackman:

The only assumption that underlay my prorating of the expense of my department between the Bell and non-Bell sales was that per dollar of sales to the non-Bell customers there would be as much of our development work as per dollar of sales to the Bell customers, which, as I indicated, I felt was a very liberal assumption. In making that, I included the sales to the Bell Telephone Company of Canada, which is one of the licensee companies and from which we

receive revenue. This apparatus and this work with which I was dealing was done primarily for the Bell customers and to fit into the plant of the Bell operating companies. On that basis, in my opinion, it is safe to assume that there was at least as much of our work included in the apparatus which they have used as in the apparatus which the non-Bell people have used. For a given distance and a given class of service, the character of the toll lines of the associate companies and the toll lines of the Long Lines is substantially the same. The American Telephone and Telegraph Company has some lines which are longer, although in some of the associate companies their long toll lines are almost as long as the longest American Telephone and Telegraph Company lines and they are much longer than the average of the American Telephone and Telegraph toll lines. At the other end, the associate companies have toll lines which are shorter than the shortest toll lines of the Long Lines, and, on the average, the length of toll lines which the associate [fol. 6686] companies employ is obviously less than the average length of the lines of the Long Lines, but the average length of the toll lines of the Long Lines is much less than the length of the longer lines of many of the associate companies. It is not unusual to find lines of a thousand miles or more in some of the associate companies.

I think that carrier and other developments to which I have referred under 5, 6 and 7 would be found on the intrastate lines of the Illinois Bell reaching out from Chicago to points such as Cairo and Springfield, and my recollection is that it is so found. Certainly, the distances and character of plant are such as to make it available there.

The one device which is absolutely fundamental to talking motion pictures, both as a direct tool and as an indirect tool, is the vacuum tube. Without the vacuum tube, the talking motion picture art as we know it today could not exist. As I have already testified, the original vacuum tube patent was granted to De Forest in 1908, and that means that it expired in 1925. We never obtained a patent on the high vacuum tube which was developed by our department. There was patent litigation over it for many years, which was decided finally by the Supreme Court last year.

The thing which came to be known as the high vacuum, as applied to these tubes, was a thing which was done by Dr. H. D. Arnold, of the Bell Laboratories, at the time the De Forest vacuum tubes were first brought to our attention

as possible repeaters and were found to be unsatisfactory. Neither Dr. Arnold nor Mr. Colpitts, his immediate superior, nor our Patent Department, nor I at that time thought that the mere bettering of the vacuum was a subject matter for patent protection, and we made no attempt to patent that thing which was so vital to the vacuum tube and changed it from an incidental tool to a very powerful weapon. And that went on for some time until we found out that a patent had been applied for by the General Electric Company on identically this work, and that caused us to make an application for a patent on this work of Dr. Arnold, which we submitted to the Patent Office with the [fol. 6687] statement that we did not think that this thing was a patentable invention, but if we were wrong in our judgment and they held that it was a patent, we thought that we were entitled to that. That commenced a litigation, or a long train of contests in the Patent Office, interference contests, and later in the courts of the District of Columbia, and in the Federal Courts, particularly in the Wilmington District, with regard not only to the matter of patentability, but with regard to the inventor, if patentable novelty were found. And that, to make a long story short, was finally decided by the decision of the Supreme Court this past year, in which they held, in the line of our original contention of no patentability, but made the statement that had patentability been shown, Dr. Arnold would have been adjudged the inventor. And during the course of this litigation and interference contest a patent on the high vacuum did issue to Dr. Langmuir of the General Electric Company on this very identical thing, and this patent was later, of course, by this decision and by the decision of the lower courts, declared to be invalid and of no effect. Throughout that litigation, the position of the American Telephone and Telegraph Company was always consistently that the device was not patentable and many of us testified to that effect.

There were other devices which were developed by the American Telephone and Telegraph Company, or the Western Electric Company, which are fundamental to the talking moving picture; there are two which I would consider as fundamental. One was the filter patents (which are the Campbell patents which I referred to previously and which were issued, I think, in 1917). These were basic patents which were very instrumental in the development of this

talking motion picture art, but which in themselves are not fundamental to the art itself. Then there is the so-called Lowenstein Negative Grid Battery patent, which is owned by the American Company and has been developed by it, although the invention was not made there. That was a patent which was purchased and developed by the American Company. Those two patents, so far as I can think, are the two, in addition to the vacuum tube, which I would call [fol. 6688] fundamental. There are, of course, a large number of incidental patents, but they are different in character from these very basic ones, and, I think, would not prevent the development of the talking motion picture art. I have been given to understand since I have been here this week, that in the decision of the Federal Court in a case involving this Lowenstein patent and other patents of a like nature, the Lowenstein patent has been declared to be invalid, but I have not seen the decision and I do not know just what the court said.

Under the exchange of licenses which I referred to heretofore, the General Electric Company, the Westinghouse Company and the Radio Corporation of America each obtained from us the full freedom to enter into the talking motion picture field under our patents. Some of these companies actually entered into that field, and are in it today. Others have also entered the field.

Of the local exchange business, the toll business of the associate companies and the business of the Long Lines, it is the local exchange plant which is most affected by that factor in the telephone business which I referred to as the reverse of economies coming from mass production and illustrated by an example involved in the increase of the number of subscribers. That is because the element of switching, which is a large and predominant factor in the cost elements of local exchange service, is a relatively small factor in the case of Long Lines service.

I was asked in my cross-examination whether the profits of the Long Lines, as compared to the associate companies, did not show that our development work had benefited the Long Lines more than the associate companies. I should say that there is not the slightest connection between the two, because the whole question of rates and price paid for service is involved and that might completely overshadow this thing wherever service can be given, and, as a matter of fact, I think it has.

I did not intend to make any claim, on my direct examination, that fine wire was introduced during the period [fol. 6689] covered by my exhibits and I do not think I made any such statement. The only thing I remember having claimed with regard to fine wire was that the results of the technique and tools developed as a result of that work under those classifications we discussed so much (5, 6 and 7) had made the use and benefits of fine wire cables much greater to the associate companies than would otherwise have been the case; it extended the use. Fine wire circuits are both cheaper and less efficient telephonically than circuits with wires of larger diameter, larger gauge. From the standpoint of cheapness, it is desirable to use them. From the standpoint of their reduced efficiency, it is sometimes difficult to use them. But, because they are less efficient than wires of a larger diameter for a given set of conditions as regards terminal apparatus and all other things, and with a given standard of transmission, the introduction of fine wires limits the distance over which you can give service with a predetermined standard of efficiency. Now, what I meant in that answer was that the work growing out of the efforts under classes 5, 6 and 7, had improved the efficiency of the things other than the fine wire, the terminal apparatus, the matter of extraneous noise, and other things there, so that you had a greater efficiency in the things other than the fine wire cable than before this work had been done, and so a greater margin of use to employ circuits of less efficiency than those which existed in the art before; and that means that you had an opportunity to use longer lengths and more fine wire cable without reducing the efficiency and reliability and general satisfactoriness of the service to the subscribers, and, in many cases, with the elements of actual improvement. That is, before we did this work, fine wire might be usable, say, for distances of two or three miles with satisfactory results. Now, after we did the work, it was usable for four, or five or six miles, we would say. Using these distances as illustrations, that is what I had in mind.

In speaking of the gauges of wire, the size of the wire goes down as the number goes up. In the standard wire gauges, the largest wires have the smallest numbers.

[fol. 6690] There is no research or development organization, that I know of, anywhere in the world comparable to

that of the American Telephone and Telegraph Company, either as to size, or scope or object.

I was asked in my cross-examination if the kind of information we furnished to the operating companies would not go in as a part of the engineering cost of constructing the new plant. What I had reference to was the kind of information derived from development and research which provides new engineering knowledge, utilizable by men who have to engineer specific plants, and is usable either to permit them to employ new things or to remove old things from the plant. It is an addition to the store of their engineering knowledge, and without it they cannot make application of these new things. It is the kind of information which they can only obtain themselves, on the assumption that the associate companies themselves maintain research and development organizations comparable in size and scope to that maintained by the American Company, if the American Company did not furnish this information to them.

None of our work is the kind that enters into the cost of general engineering. It would be over and above that kind of thing, if by "cost of general engineering" you mean those costs which become a part of the cost of constructing a plant. The information to which I referred as being furnished by the Department of Development and Research is of the character of furnishing new engineering knowledge to people to use as they want to use it.

I was asked in my cross-examination what proportion of the Long Lines plant was involved in switching, and I stated that I did not know. I was then asked whether I knew that the proportion was small or large, and I said, "I should say it was considerable." I have looked into that matter and refreshed my recollection since my answer, and have satisfied myself generally as to what that proportion is. That proportion is certainly less than 10 per cent and certainly not to exceed that amount.

I do not think the use of the filter is a necessary thing in [fol. 6691] the making of a satisfactory talking motion picture. However, I think it is a convenience, and, in some cases, probably can be used to slightly improve.

In answer to Mr. Haight in my cross-examination I said that the results of the development of the kinds I was referring to, both the tools and the things that were used in

the plant, had the effect of making costs of construction and costs of operation less. I did not mean by that that it costs any less, because of any work that we have done, to install a mile of a particular kind of underground conduit, or a mile of a particular kind of underground cable. I did not have that in mind at all. I did not have in mind at all the cost of actually installing a mile, say, of full sized cable today as compared to some preceding time. I have no knowledge as to what that relationship is, because it involves such an enormous number of factors, of labor costs and obstructions in the streets, and what not. What I had in mind was that, as a result of our work, cable so installed provided, we will say, more circuits for the use of the telephone company. That is, we would get more wires in a given size of lead sheath and by our carrier we would make each wire do double duty. That is the kind of thing I mean. As far as I know, the cost of installing a pair of wires on a pole line today, assuming the cost of the wires themselves to be the same, is higher than it was some years ago, and yet that same pair of wires, because of this work, is capable of carrying many messages. Now, I did not have in mind anything relating to the cost of actual installation.

I think these transoceanic services have a very large publicity value and a valuable publicity value. My reason for that feeling is not only the tremendous amount of free advertising which the installation of those services has produced, but is also the result of the conversations which I have had with innumerable people who look upon that as a great achievement, and also because of the fact that in connection with the opening of these services the associate companies have considered it important to make, particularly in the early days of the extension of the trans- [fol. 6692] atlantic service, public functions out of the inauguration of that service as an extension of the service of their business.

I am not competent to say whether the loss that the Long Lines incurs on this is worth the money in its advertising and publicity effect on the associate companies. I can say that in my opinion the expense of the loss incurred by the Long Lines for the benefit of the Bell System, which means the associate companies, is thoroughly worthwhile, not only to the Bell System, but to the public which we serve.

Recross-examination.

By Mr. Haight:

The information furnished by the Department of Development and Research in connection with the building of plants is, in my judgment, necessary for the introduction of new things into the telephone plant to improve it, to build new plant involving those things. I cannot see how many of these new things can be introduced without the engineers of the local plant knowing what they are, what they can be expected to do, and what they cannot be expected to do. Obviously, I can postulate the building of a plant of the art of today without the introduction of any new information from development and research beyond what has already been given, but I cannot postulate the building of the plant of tomorrow, involving new things, without the Department of Development and Research, or some similar department, furnishing the engineers of the operating companies with the information regarding those new things. In other words, I cannot postulate an improved plant being installed without somebody furnishing information about the things to improve it.

If I postulate the construction of a plant in 1923, let us say, without all of this information furnished by the Department of Development and Research, that plant would not be a practical plant for the services that are now furnished. Such a plant I could not contemplate as being then constructed outside the Bell System, that is, certain parts of that plant as it was constructed in 1923 it is difficult for [fol. 6693] me to postulate being constructed outside the Bell System in that year.

In mentioning some of these patents, like the Lowenstein patent and the invention of Dr. Arnold, I was not suggesting that there should be a reduction in the license payments on account of having collected what in effect are royalties on void patents. I did not call attention to the DeForest radio patent, issued in 1908, and its expiration to indicate that nothing had been done since. That is, I still justify the expenditures made upon investigations relating to vacuum tubes since the date of the DeForest invention. Even the DeForest invention in its particular embodiment at that time had to be changed to adapt it to the use of telephone repeaters. We did develop it and that instrumentality so developed was later used in these various radio uses.

The Campbell patents that I referred to related to filters. I do not know that the specifications of these two patents are identical; I have not looked at them for a long time.

"Q. Did you know that the applications in those two patents of the inventions were in connection with wireless telegraphy, wireless telephony, multiple high frequency wire telephony, composite telegraph and telephone lines, and in particular with telephone repeater circuits? It does not mention radio at all.

"A. What was the first thing that you read?

"Q. The first thing I read was wireless telegraphy.

"A. Well, isn't that wireless?

"Q. Quite true.

"A. You said that it did not mention that at all.

"Q. No, but these other radio uses, I mean, the other uses of the vacuum tube.

"A. Oh, certainly not."

Those uses were all developed after that and I think I testified that the influence of this filter art was in permitting us to do many things which were not contemplated by the inventor.

Through the efforts of Dr. Arnold and others we secured a more perfect vacuum, that has been a benefit, notwithstanding the fact that the patent was not secured. In my [fol. 6694] discussion of patents, I have not intended anywhere to imply that our failure to secure the patent has not justified our research and development work. So far as we are concerned, I doubt whether we would have changed the character or amount of our development work one iota if the patent law had been abolished.

Many of these things that are of an engineering type are things in which no invention resulted whatever, but they were nevertheless mechanical improvements and improved the devices that were in use in many parts of the Bell System. There were no patents upon fine wire as such. I presume there are patents on fine wire cables or on the parts of fine wire cables, and I presume there are patents upon various arrangements and uses of these arrangements.

The figures in column 2 of Exhibit A-119 come from Mr. Crunden's Exhibit A-113.

"Mr. Haight: We point that out, if your Honor please, only that we may make a motion to strike this exhibit and

the testimony regarding it, for the same reasons that are assigned in connection with Exhibit A-113, presented by Mr. Crunden.

"Judge Wilkerson: I think, before you start this other witness, I think the record is closed as to that motion for the inspection of documents, is it not? Judge Evans and I granted the motion as to certain documents, and I think it was understood that upon the present record we were not inclined to order inspection of the other documents mentioned in the motion. I think Mr. Adcock took an exception to the ruling.

"Mr. Adcock: Yes.

"Judge Wilkerson: We have gone over the matter again since the argument, and adhere to that view about the inspection of any documents other than the ones the inspection of which we directed at the time.

"Mr. Adcock: Of course, our exception may stand to the Court ruling on that?

"Judge Wilkerson: At the time we directed the inspection of certain documents, we said we were not inclined to direct [fol. 6695] the inspection of the other documents, but that we would look at them again and consider the grounds which were assigned in the motions, but we think we have gone as far as is proper upon this record in directing the inspection of documents.

"Mr. Adock: Then the exception that we asked to appear in the record may apply to this ruling now?

"Judge Wilkerson: We wanted to make sure that the record was closed, and no one expected the Court to do anything more on that motion."

ALLAN B. CRUNDEN, recalled as a witness on behalf of the plaintiff, having been previously duly sworn, further testified as follows:

Direct examination.

By Mr. Blackman:

May 12, 1932.

I prepared the sheet marked for identification as Plaintiff's Exhibit A-120. I obtained the information from certain reports of the Comptroller's Department, which are stated at the foot of the document. All of these documents

have been available to the defendants. The individual reports of the separate operating companies which have been under discussion here do not immediately underlie those or any of them. That is, the reports underlying this sheet are cited on the document and they do not include reports of the individual companies other than the Long Lines and the Bell Telephone Company of Canada. The rest of the information is contained in a report described there as C. R. 51-A. That is a report made in the regular course of business of the American Telephone and Telegraph Company.

(Plaintiff offered sheet marked for identification as Plaintiff's Exhibit A-120 in evidence.)

Plaintiff's Exhibit A-120 is the per cent of the Long Lines of the total telephone revenues, of the total exchange and toll and miscellaneous operating revenues of the Bell System, including the Bell of Canada combined. It shows [fol. 6696] the percentage relationship between the revenues of the Long Lines and the revenues of all the other companies combined, including the Long Lines. That is shown in the last column to the right.

The sheet marked for identification as Plaintiff's Exhibit A-121 is similar in general form to Exhibit A-120 but it shows the ratio of percentage of the total telephone revenues of the Chicago area to similar revenues of the total associate companies, excluding the Long Lines and including the Bell Telephone Company of Canada. I got the information for this exhibit from the same sources as I did with regard to Exhibit A-120.

(Plaintiff offered document marked for identification as Plaintiff's Exhibit A-121 in evidence.)

Cross-examination.

By Mr. Goldstein:

In both Exhibits A-120 and A-121, I compiled the statistics as to the operating revenue of the associated companies from C. R. 51-A. C. R. 51-A is a summary statement which is compiled, in turn, from M. R. 1 from each of the associated companies of the Bell System. Each of these reports of each of the associated companies that come from the associated companies to the American Telephone and Telegraph

Company were the M. R. 1 reports to which the defendants were denied access.

"Mr. Goldstein: We object to the introduction of A-120 and A-121 on the ground the sources have not been made available to us.

"Judge Wilkerson: He says you are introducing a tabulation or document that you have not let him see. Now, is that true?

"Mr. Goldstein: Sure, they have got this Court to rule that we are not entitled to them, and then they are using the same document.

"Mr. Blackman: We offered to let them see them.

"Judge Wilkerson: We want to have the record clear on that.

[fol. 6697] "Mr. Blackman: We offered to let them see anything on those documents that relates to any of the figures which have been used. This is the same precise point that was raised with regard to Exhibits 99, 100, 101 and 113.

"Judge Wilkerson: You will note your objection. We will rule on it.

"Mr. Adcock: I think this relates to the matter that was to be presented to the Clerk, doesn't it?

"Mr. Goldstein: No, this is the first time we have had operating revenues involved.

"Mr. Blackman: They all come from the same sources.

"Mr. Goldstein: The sheets we have asked for in the motion that was denied to us are the identical sheets that they have taken every figure from for every exhibit from A-99 to A-121. The only figures they have not taken on the percentage calculations on those exhibits. These exhibits are taken in the aggregate, and every figure of operating revenue, every figure of operating expense and every figure of plant from every company of the associated companies was used as a basis for A-99 to A-121, and yet they have refused to let us have the documents.

"Judge Wilkerson: Well, bring it up before the close of the case, we will rule on it, we will hear the motion, and rule on it.

"Mr. Blackman: I understood, your Honor, we had agreed on the procedure. We offered to bring it into court here, and your Honor said they could look at it under the supervision of the Clerk.

"Judge Wilkerson: Mr. Goldstein says he has not seen it yet.

"Mr. Blackman: We will do it any time he fixes.

"Judge Wilkerson: You may remove the basis of the objection before the evidence is closed, and, if it is not removed, bring it to the attention of the entire court, and we will rule on it.

"Mr. Goldstein: That is all."

[fol. 6698] ARTHUR W. PAGE, called as a witness on behalf of the plaintiff, having been first duly sworn, testified as follows:

Direct examination.

By Mr. Blackman:

May 12, 1932.

I am Vice President of the American Telephone and Telegraph Company and have been since the first day of January, 1927. I have direction of the Information Department of that Company, which means charge of the advertising and publicity which the American Company does for the Bell System and also to advise with the associated companies of the Bell System on their public relations. That is, I advise the associated companies as to how to conduct their own publicity and I conduct general publicity in their interest. That has been the scope of my duties throughout the time I have been connected with the American Telephone and Telegraph Company.

Previous to my connection with the American Telephone and Telegraph Company, I was an editor and publisher for about 22 or 23 years.

The paper marked for identification as Plaintiff's Exhibit A-122 is the chart of the organization of the Information Department of the American Telephone and Telegraph Company, which is my department. That chart is made up in the regular course of business and correctly shows the people that are employed under me, and, in a general way, their duties.

The principal expenses of my department are payment for advertising space, salaries, and the service charges that go with it, and the payments for printed matter.

The sheet marked for identification as Plaintiff's Exhibit A-123 is the sheet showing the cost of advertising placed by my department in the years 1923 to 1931. This sheet was made up under my supervision and is correct.

[fol. 6699] The first column of this sheet (A-123), headed "Paid by Long Lines Department", is the addition of the bills sent to us by the advertising agency which places the business; that is, the cost of white space, so to speak, to us. There is no pro rate of any kind involved in that; it is just the direct bills for the advertising ordered by the Long Lines Department. The Long Lines Department has a general information department of its own, which is similar to mine. We do their advertising for them, but they take care of certain other publicity of their own. We take care of this national advertising in national magazines for the Long Lines and for all associated companies. The character of this particular advertising is designed to increase the use of toll and long distance telephone, particularly in commercial business. The beneficiaries of this advertising are the Long Lines of the American Company and the associated companies. That is, the advertising of one class of long distance would tend to increase all toll and long distance telephone.

The figures in the second column are the similar figures for the advertising placed for the Bell Securities Company and paid for by the Bell Securities Company. This advertising was for the purpose of bringing to public attention the securities of the Bell System. These securities consist of the stock of the American Telephone and Telegraph Company and its bonds, the preferred stock of certain associated companies and bonds of the associated companies and any securities in the Bell System.

In the last column is the advertising of general good will and sales and service advertising of all kinds paid for by my department. That advertising is designed to make people appreciate their telephone service, to take more telephone service, to take telephone service if they have not got it, and, in all ways, to increase the use of telephone service and the good will toward the telephone company. The beneficiaries of this advertising are the associated companies, and, to some extent, the Long Lines.

(Plaintiff offered in evidence sheet marked for identification as Plaintiff's Exhibit A-123.)

[fol. 6700] The sheet marked for identification as Plaintiff's Exhibit A-124 was prepared under my supervision. It shows my estimation of the proper allocation of the charges of my department to the Chicago area; that is, the proportion of my department that is fairly allocable to the Chicago area of the Illinois Bell Telephone Company. The figures in column 1 represent the employees in my department. In column 2 are two groups of figures, the top one of which is the last figure on Exhibit A-123 and means the cost of white space, and the second figure under it all the way through each year is the rest of the expenses of my department. All the way through in each year the first figure of the group of two is taken from the last column of Exhibit A-123 and represents this advertising space that I speak of.

The figures in column 3 are the cost of the part time of one man who looked after the placing of the Bell Securities' advertising. I got that on a pro rata basis by taking the cost of the advertising division, as is seen here under Mr. Cook, and the percentage of my time, and allocating that against all the advertising we placed on a cost basis and putting the Bell Securities in for its part. Mr. Cook does not write the material that is published; he merely sees that the advertising agency does what we pay it to do. The advertising agent of the Bell Telephone Securities writes its material and the advertising agent is paid for that; that is, he gets his commission out of the magazines in which it is placed.

The figures in column 4 are the figures in column 2 minus the figures in column 3.

The figures in the two columns headed "(5)" are the percentage figures that were offered by Mr. Crunden just a few moments ago, and the figures in the column to the right are merely the application of those percentage figures in column 4. The figures in column 6 are the deduction of these amounts from what you had left in column 4; that is, when you deduct column 5 from column 4, you get column 6. The figures in the last two columns are the percentages of Mr. Crunden's that were offered in evidence and the result is the direct mathematical result from that percentage.

[fol. 6701] The figures of $217,000 in the year 1923, which is the second figure in column 2, is the cost of editing, printing and issuing two periodicals and distributing them and various pamphlets which are issued by the Information Department. The periodicals are the Bell Telephone Quarterly and the Bell Telephone Technical Journal, and the pamphlets are various ones like the Magic of Communications, the Bell Telephone Almanac, and various similar ones of that kind. The magazines are circulated primarily within the Bell System for the information of the people in the Bell System, but the pamphlets are for public distribution. My department, which prepares and prints them, gives them to the associated companies and the associated companies distribute them to the public. The associated companies get practically all the pamphlets except for a few that trickle out in one way or another from my office; the means of distributing them is through the associate companies. There is something like a million and a half copies of the Almanac printed; that is the largest. The Bell Telephone Quarterly has a circulation of about sixteen thousand copies, of which about ten thousand go to the people in the associated companies and six thousand go to libraries, colleges, foreign telephone administrations, certain magazines and newspapers and certain lists of people that the associate companies have given us that they wish it to be distributed to. In that distribution there are probably four or five hundred copies that go to people in the Western Electric or the Bell Laboratories, and perhaps one hundred or more that go to other telephone manufacturing people in this country and abroad. The purpose of sending these to people outside the Bell System is partly publicity and partly to inform them of our business. People like the Western, of course, ought to know what is going on in the Bell System in order to serve it better. When we send these abroad, in the case of the Technical Journal, which is the one which goes abroad most, the hope would be that in return for the technical information contained in that that we give to foreign telephone administrations, we get back material of a similar nature. They do send us similar material; there is a courtesy interchange. You see [fol. 6702] the matter is a very small amount of money. The Technical Journal, differing from the others, has about two thousand paid subscribers, and the money we get from

them is a credit. If we were to count all of the distribution of our national advertising of every kind, I think there would be about six hundred million pieces a year.

(Plaintiff offered in evidence document marked for identification as Plaintiff's Exhibit A-124.)

Cross-examination.

By Mr. Goldstein:

There is only Mr. Cook's and my salary that is represented by the work that is done to advise the associated companies in connection with their own advertising. I would not know what proportion.

The same kind of ads, the expense of which is included in my calculations, may also appear in the Bell Telephone News and Directories. They can if they want to. If such an ad does appear, there would be no payment made to the local company for that. We prepared that for their use and they use it in any way they like. We did not charge them anything for preparing it for them, only as included in this general expense. No specific charge for preparing it was made to the associated companies. In fact, they use anything we do in any way that they like.

This institutional and sales advertising does not relate to the sale of stock and to the dividend returns on the stock of the American Telephone and Telegraph Company. That is the Bell Telephone Securities that I have omitted in my exhibits.

I have not available here a copy of the advertising of a character the expense of which is included in the two columns of A-123 headed "Paid by Long Lines Department" and "Paid by Bell Telephone Securities Company."

"Mr. Goldstein: That A-124 is based upon Crunden's figures.

"Mr. Blackman: Yes.

"Mr. Goldstein: Our motion to strike is the same."

(Plaintiff offered in evidence exhibit marked for identification as Plaintiff's Exhibit A-122.)

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[fol. 6703] CHARLES A. HEISS, called as a witness on behalf of the plaintiff, having first been duly sworn, testified as follows:

Direct examination.

By Mr. Blackman:

May 16, 1932.

I testified at the first trial of this case about two years ago. I was called by the defendant, City of Chicago. I was and am Comptroller of the American Telephone and Telegraph Company. I have been Comptroller of the American Telephone and Telegraph Company approximately twelve years. I have been connected with the American Telephone and Telegraph Company approximately nineteen years. During all that time, I have been connected with the Comptroller's Department, first as an accountant for two years, two years as an Assistant Chief Accountant, about two years as Chief Accountant, one year as Assistant Comptroller, and the remainder of the time as Comptroller.

I am a graduate of the Bloomsburg State Normal School, Bloomsburg, Pennsylvania; I attended Franklin Marshall College, then attended the College of Political Sciences, and also took courses in Columbia Law School in Washington, D. C. There I specialized in accounting and economics, and later received an A. B. degree from George Washington University, and thereafter spent considerable time at the University of Michigan, specializing in accounting and economics and related subjects, and subsequently received a Master's degree from that institution.

Previous to my employment by the American Telephone and Telegraph Company, I was doing accounting work. I spent seven years with the Interstate Commerce Commission, part of the time in its Statistical Department, and later in its Bureau of Accounts as an examiner.

[fol. 6704] I receive monthly from the Personnel Department of our Company their approved expense bills and supporting statements. These are classified according to our classifications established by my department. We audit these bills and tabulate them for entry on our books, and also for the purpose of preparing for the Vice President in charge of the Personnel Department an administrative report. That gives me a very definite familiarity with the expenses of the Personnel Department. Then, in addition, representatives of my department and I have many conferences with the Personnel Department staff. We have numerous problems on which we work jointly, and in these

ways we have become very familiar with the work and expenses of our Personnel Department.

This paper was prepared by my direction and under my supervision (paper marked Plaintiff's Exhibit A-150 for identification). It purports to show an allocation to the Chicago area of the fair proportion of the expenses of the Personnel Relations Department, a division of the Personnel Department, incurred in rendering license contract services during the years 1923 to 1931, inclusive. The general foundation for this exhibit is Exhibit 193, included in the deposition of Vice President Carter, taken recently in New York City.

"Mr. Blackman: At this point, your Honor, I would like to present to the Court the deposition of Mr. Carter. I don't know whether you desire it read in, in question and answer form.

"Judge Wilkerson: It may be considered as if it were read in full in the record, and may be abstracted with the testimony, in its regular place.

"Mr. Haight: That is quite all right.

"Mr. Blackman: Then, just to make the record correct, I will offer in evidence the deposition of Edwin F. Carter, called as a witness on behalf of the defendants, and examined pursuant to an order for examination issued by this Court."

(The deposition of Edwin F. Carter last above referred to was thereupon received in evidence, and made a part of the record.)

[fol. 6705] EDWIN F. CARTER, for defendants:

Direct examination.

By Mr. Goldstein:

I reside at 1192 Park Avenue, New York City; I am vice-president American Telephone and Telegraph Company. My work relates to the policies and practices affecting the employees and in addition in certain connecting company relations. I am in charge of the department of the American Telephone and Telegraph Company called Personnel Department. I have been the head of that department since May 1, 1930, and have been with that corporation since that time.

Prior to that I had no connection with it as a corporation, but was president of Ohio Bell from August, 1926, to May 1, 1930; before that I was vice president of Southwestern Bell located at St. Louis. I was made vice president Southwestern in spring of 1926; prior to that I was general commercial manager from spring of 1921; prior to that I was general manager for that company for the State of Texas; prior to that, general manager for Kansas. I entered the employ of the old Bell Telephone Company of Missouri at St. Louis in June, 1900; I have been employed with the Bell System since that time, but there was an intermission in my service of something between two and three years.

The Personnel Department was organized as it now stands by Mr. E. K. Hall in 1920 or 1921. There has been some change in the functions of the department since that time. Some part of the work has been transferred to another department. Under Mr. Hall's administration, department had a great deal to do with public relations. Since I have been connected with it, it has been confined to personnel and connecting company relations. Public relations I consider to be matters relating to policies and practices of the company as having to do with public attitude.

A great deal was done in the way of helping public relations through employee contact. The Bell System has [fol. 6706] scattered throughout the United States some 300,000 employees. If the attitude of the employees is right toward the public, if they are courteous, if they are willing to accommodate, if their work is splendid, that all supplies good public relations, but my department has only that type of public relation work,—that is, we have nothing to do with advertising, institutional advertising and matters of that sort.

Taking the period prior to the time I came with the department. I am not familiar, however, with the character of public r on work done at the time. I haven't anybody in my rtment who I think would be familiar with it. Prior to the time I came with this department I was in the field as a president of an Associated Company and as a vice president of another Associated Company; prior to that for some time as its general commercial manager, and I was during that time in contact with this department from the field side.

I don't know what was done by my department prior to 1930 covering the subject matter of public relations. Since I have been with the department, I have somewhere between 90 and 100 in the Benefit & Medical and between 35 and 40 in Personal Relations. That is about the number that I have had since January 1, 1930. There have been some small changes. I have not the chart showing the organization of my department. There are no charts of my department put together for the departm t as an entirety.

The expense of the Personnel Division of the department, plus the administration of the Benefit and Medical, plus the Benefit and Medical payments, plus the Service Pension Accruals, all that goes into the Expense Account, runs between ten hundred and fifty and eleven hundred thousand dollars a year.

I have not with me any compilation of such expenses. I am quite sure Mr. Heiss' department would have that.

I have a statement, however, here showing the departmental expenses for the period from 1923 to 1930. There are two divisions of the department. The document which [fol. 6707] I have before me which is the statement, is marked Defendants' Deposition Exhibit 193 for identification. This Exhibit 193 consisting of two sheets is entitled American Telephone and Telegraph Company Excluding Long Lines Department, apportionment of departmental expenses between (a) those related to the furnishing of license contract services, and (b) those comprising other expenses of the Company, years 1923-1930, "Benefit and Medical Department," was prepared by me with clerical assistants. The figures shown on page 1 were prepared in my office from records in my office. Column 1 is entitled "Total Department Expense"; column 4 is entitled "Amount not specifically allocated, apportioned on basis of study." All columns were prepared from records in my office.

Both sheets were prepared by me from records in my office.

The occasion for the preparation of these two sheets came as a result of a discussion with Mr. Heiss about a year ago, probably in March. Of course the figures for 1931 were subsequently added.

Referring to columns 4, 5 and 6, the figures from column 4 are taken from the departmental reports. The items

are charged so that they can be taken right from the reports. The 80 per cent of the staff expense in the Benefit and Medical Department is that part of the time which very clearly is given to Associated Companies and Long Lines. Column 7 is the remainder in dollars. Column 8 is a percentage. Column 6 bearing the per cent and column 5 the amount of the total expense for each year 1923 to 1930 is allocated to license contracts because that expense represents the services clearly allocable to Long Lines and the Associated Companies. It is columns 5 and 6 that the 80 per cent produces. The services which I stated are clearly for each of the Licensee Companies and Long Lines embrace the general staff which is engaged in giving advice and assistance to the Associated Companies and to Long Lines in the administration of their benefit plan, in giving them information in regard to their sickness ex- [fol. 6708] perience, and the sickness experience of other companies, and in promoting health activities. They give all the health statistics; they have collected very valuable health statistics. That is the basis from which they start on approving health conditions. They compile the statistics of all companies in the Bell System, thereby exchanging information.

The 20 per cent is intended to cover the contact with Western Electric and with the Laboratories, which is perhaps not service directly rendered to the Associated Companies of the Long Lines, but the Associated Companies and the Long Lines benefit from that, so that it is making a clear division between the services rendered the Associated Companies and the Western Electric. The basis of the 80-20 division instead of some other ratio was the basis of reviewed work and the best judgment that could be applied to it. It was not on a time sheet basis, just a matter of judgment.

The number of employees of the Bell System to which all of this was applicable, has varied at different times. At the present time there are almost 300,000, there being 340,000 to 350,000 in the associated companies and the Long Lines, Western Electric and the Laboratories; something under 300,000 are in the associated companies and the Long Lines; there are between 15,000 and 16,000 in the Long Lines. That figure that I gave includes the employees of the General Department of American Telephone and Telegraph Company.

The number of employees in the different companies were taken into consideration in a general way only in determining the 80-20 per cent division. It was considered in this way: Whether or not some divisions would be out of line considering the number of employees, but the division of 80 and 20 was made on the basis of what the departments were doing in that work. The division 80 and 20 was made on the amount of work done and not according to the number of employees. The same kind of work is not done for the Western Electric as is done for the associated companies. The Western Electric has different problems. They are a factory, for example, We have an employees' representation plan which my department works with all the time. That is a plan where employee [fol. 6709] representatives and management representatives sit down and discuss problems that affect management and affect employees, say such a problem as we have at the present time in the Division of Work, which means part time employment and reduces income for employees. We are in contact with that all the time, watching the trend and the attitude of employees. I don't think the Western Electric has any such plan; at least, we have never had any contact with it.

I haven't the total amount of expense by year covered by that specific service, but I have the expense by departments. I haven't the amount of expense covered by that particular service which is only done for the licensee companies that is not kept. I don't think I could make up a statement with any degree of accuracy covering that. I could approximate it to determine what portion of my total amount put in for the 80 per cent would be represented by that expense. I don't know that I could go back as far as 1923, but I will attempt to prepare such a statement.

The employee representation plan I think was introduced in the Bell System early in 1919, so that that particular service covers each of the years 1923 to 1930.

I don't think of any specific work other than I have mentioned that has been done for Associated Companies and Long Lines that has not been done for Western Electric, other than that there is more consultation with Associated Companies than Long Lines.

On one of those sheets there is an item which is allocated [illegible] per cent.

I have been talking about the personal relations appearing on page 2, and my answers to your questions have been directed to that.

"General Staff Services, Benefit and Medical Dept." covers work for Western Electric and its subsidiaries and associated companies, including the Bell Telephone Laboratories. There is contact all through there, with all the companies of the System, including 195 Broadway.

I don't think that item covers the Bell Securities Company as I don't believe it has any payroll employees. That [fol. 6710] item does not cover Graybar for any year. I apportioned the expense of general staff for 1923-30 on the basis of 80-20, which resulted from a study and review of work done, contact with all companies, and is my best estimate of that part of the work that can be directly allocated. The 80 per cent to associated companies and the Long Lines.

I have available data in my department of the number of employees of the associated companies, Long Lines, Western Electric and its subsidiaries, 195 Broadway, Bell Telephone Laboratories, for each of the years with whom my department has contact. I will prepare such a statement.

The staff of the Medical Department shows the sickness records of the companies and tabulates those studies then and reports back the sickness experience to all of the companies. It is the Statistical Division of the Benefit Department. They also give detailed information to the associated companies on request and discuss statistical work with the associated companies. They also give the detailed information on request and voluntarily to the Western Electric and its subsidiaries.

As regards this division, everything that is done is done for the entire Bell System. I am not sure whether the statistics cover the entire System. I will have to refresh my recollection. The reports are in my department.

Referring now to the Benefit Division—it administers the Benefit Plan of the General Departments, American Telephone and Telegraph Company, except Long Lines. Long Lines has its own Committee on Benefit. The Benefit Department is confined exclusively to the General Department. The Third Division is the Medical Division that is the medical course given to employees of the General Department. That is not the Medical Departme

The Medical Department may give medical attention to an employee of Western Electric or an employee of Long Lines or an employee of the associated companies, but that would be charged to that company whose employee receives the medical attention. That is the figure for the services to the General Department for which no charge is made. But if medical attention is given to employees [fol. 6711] of associated companies or the Long Lines or the Western Electric a charge is made to the Company.

The Fourth Division is benefit payments. Benefit payments cover sickness and death benefits, service pension accruals of the employees of the General Department, which relates to the American Company only. It applies to the General Department. The 80 per cent of the $43,587 in column 4 applies to staff and is applicable to license contract. For the remainder of these figures there are no percentages. That was all determined by Mr. Heiss. It was the over-all picture that gave him a percentage on those figures.

I did not make that allocation relating to the $24,424 in column (4), it having been determined by somebody else. There are some items which you can now and then specifically charge. In the column "Total (4)" is the total not specifically allocated. Then that is allocated on the basis of 80 and 20. The allocation begins with column 5. The general staff has been allocated on the basis of 80 and 20 per cent. There is no allocation of the figures in column 4 for the Divisions of Benefit Medical and Benefit Payments.

Referring to page 2, there are four subdivisions—Administration, Personnel, Public Relations and Special Training under Personnel Relations. Administration represents cost of my office, it being engaged in the Administration Work of the Department, in conference and counsel with the associated companies and the Long Lines Department on all matters affecting employees. It also covers some, but very little, consultation work done with the employees of Western Electric and its subsidiaries. It also covers consultation work with employees of 195 Broadway, Bell Laboratories and Long Lines. My statements apply to the work done by the department before I came with the department. The work of the Administration Division I had contact with when I was in the field,

and my own idea is that conditions are about the same now as they were before I came with the Department.

The Personnel Division has contact with the associated [fol. 6712] companies and Long Lines on the administration of employees' representation plan, on the administration of employees' thrift plan, a contact with the personnel men of the associated companies and Long Lines in connection with their employee problems and following the general trend of labor conditions outside and inside the industry. That division does not do the same work for the Western Electric and its subsidiaries. That division's contact with the associated companies and Long Lines is different from their contact with Western Electric. It covers a different subject matter. That was the particular division I referred to when I mentioned employee representation and said that I did not think the Western Electric had an employee representation plan.

Apart from the representation feature, that division would have the same kind of contact with Western Electric and its subsidiaries, but they do not give the same amount of attention to the work. They give whatever attention is necessary to the work of Western Electric and its subsidiaries.

Public Relations Division consists of a man and his secretary located in Cleveland, Ohio, the central part of the associated companies' territories. He has contact with the different connecting companies, with the state and national associations and he advises and plans with the associated companies and those only, because they are the only companies that have connecting companies and connecting company problems and connecting company matters. He has no contact with Long Lines nor with the Western Electric nor with the laboratories. Long Lines has no contact with the connecting companies. The traffic problems of connecting companies are between the connecting companies and the associated companies, but the contacts cover long distance service. The connecting company can go over the Long Lines just as over the associated lines.

The state and national associations I referred to are organizations of so-called independent telephone companies. That work has been going on for years. I had very close contact with that division in Cleveland because it was lo- [fol. 6713] cated there. My contact with that particular division was a little bit more intimate when I was in Cle-

land than it is now. I think that division goes back to the year 1923, but I would have to check.

Special Training Division covers the work growing out of our relationship with the colleges. The Bell System employs a great many college graduates. This department has contact with the colleges and universities and co-ordinates with the colleges on recruiting problems, keeps in touch with the college graduates and follows their record after they enter the Bell Sytem. They also follow the record of promising material other than college graduates, colleges such as the State Universities, the Eastern Universities, say Cornell and Princeton, Yale, Massachusetts Institute of Technology and schools of that character. That covers persons who would be likely employees for any and all portions of the Bell System. Western Electric and Bell Laboratories take a substantial number over the long run of college graduates.

Referring to column 6 and column 8, I will say again that all of this division is on the same basis, a study of the work done, a study of the contact with the associated companies and Long Lines and Western Electric and Bell Telephone Laboratories, and as a result the percentages appearing in column 6 is the percentage of the amount of time and effort of this division given to the associated companies and the Long Lines.

For the years prior to the time I came with the Department, I made the allocations between the contract and the other services. When the allocation was made, I did not have the time sheets or records of the effort for each of the years 1923 to 1930 before me, but I knew what the departments were doing in those previous years. I knew that there had been no material change in the work of the department. I had the further knowledge that I was in the field, and in contact with this division in those years and also with the other divisions.

Colonel Rees is at the head of the special training division that deals with the colleges and universities, and I was in frequent contact with him in the field, especially in Cleve- [fol. 6714] land. There are two universities in Cleveland, and I was in contact with Colonel Rees in college employment matters right up to the time that I came here. While I was in the field I talked with him on this particular subject

matter. That did not involve also the question of time and efforts spent in connection with likely candidates for Western Electric and its subsidiaries; so that all my contact was with reference to the amount of work and effort in connection with candidates who would be likely employees for the associated companies. I have reviewed since I have been here, with Colon Rees, the work of those years. He is with my department now and he knows the activities of that particular division prior to the time when I came with the department.

I don't know how many men were employed in the Special Training Division for the year 1929. Colonel Rees has two assistants stationed here, at 195 Broadway. He also has perhaps three or four clerical workers. The total expense of the Special Training Division for the year 1930 was $91,131; 1929, $89,109.

The work done in 1930 by that division was with the universities, associated companies, Western Electric and the Laboratories. That division maintains contact with the colleges and universities all through the year by traveling and by correspondence. I think we have a complete record of all college employees. The recruiting is done in this way: There may be two or three associated companies and the Western Electric recruiting at one university, but say, for example, the Ohio Bell Telephone would not come on here in the East and recruit. If a likely candidate was found in the East that would like to go to Ohio, that application would be referred to Ohio, so that the recruiting is done during a certain period at the universities all over the country. Western Electric recruiting is done in a greater number of universities but not in all of them. Long Lines may recruit any number. Recruiting for a particular associated company is not restricted to its territory. It may go out of its territory and may go to an adjoining state. But it is a more restricted territory than the Western Electric and Long Lines.

[fol. 6715] Cross-examination.

By Mr. Blackman:

The Bell System, including Western Electric and Bell Telephone Laboratories, has now between 340,000 and 350,000 employees. The employees of the associated companies and Long Lines are daily in contact with the public. The Bell System requires an organization of high productivity

and a great deal over and above that,—an organization of men and women of good citizenship who have the right attitude toward their company and toward their work and toward one another and toward the public, because without that this great system cannot succeed.

The endeavor to obtain it is applied along many different lines. The training of employees goes on daily, usually handled by the supervisory organization. The securing of the right type of employee begins with the time that employee is selected and placed; it carries on through with his promotion, securing the right attitude, which is determined pretty much by whether the employee is fairly treated, whether his wages are fair, whether his working conditions are good. The efficiency is somewhat affected by his own mental attitude. He should be reasonably thrifty to be a good citizen; he should be relieved in so far as it is practical to do so, of that type of worry which destroys his efficiency, so that in addition to what the line organization does below and in addition to the help that any personal staff, working in connection with the line organization and helping obtain the right material, and helping to train that material, and helping to place that material in the right place, there are many other things that can be done that can add to the citizenship and character of the employee.

Some of those things, for example, are the employee thrift plans. The company does not require an employee to save, but it makes it easy for them to save, and the saving is entirely at the employee's discretion, yet, as I recall, in the year 1930 there were 80 per cent of the employees of the Bell System using one or more of the company's savings plans.

The employees' benefit and pension plan is looked upon as [fol. 6716] an aid in securing the right type of men and women and holding that right type of men and women in the organization.

To a utility operating all over the United States, it is especially important that its employees are that type of employee, that they are courteous and that they are considerate, accommodating as well as efficient.

On top of that general administration of the business, there are these things which I mentioned which are over and above technical efficiency, and this department which I head is interested in improving the organization along those lines as well as the lines of technical performance.

The activities of the various divisions of my department are devoted in one way or another to promoting those objects that I have mentioned, except the connecting companies, of the small public relations, and that is promoted by the relationships with the connecting companies of the Bell System.

There are now in the associated companies, the General Department and the Long Lines, about 295,000; 16,000 in Long Lines; small number comparatively, in the General Department; about 275,000 in the Associated Companies; in Western Electric, 40,000 to 45,000; Bell Laboratories something over 5,000.

Column 8 on the exhibit I have mentioned, shows the percentage of work done by these divisions which we cannot say can be definitely and directly allocated to the associated company and Long Lines. The figures in column 6, ranging from 80 to 100 per cent, can be directly allocated. The associated companies and the Long Lines benefit from all the work done by my department. I cannot think of anything we do that would be significant in amount that is not in the end directed to the benefit of the associated companies or Long Lines.

Annual reports American Telephone and Telegraph Company for years 1918 and 1919 to the stockholders offered in evidence by defendants as Defendants' Deposition Exhibits 50-A and 50-B, respectively, to which objection was made by plaintiff for irrelevancy, incompetency and immateriality.

[fol. 6717] EDWIN F. CARTER, recalled:

Redirect examination.

By Mr. Goldstein:

In connection with the number of employes listed under the column of Western Electric Company, its subsidiary E. R. P. I. was included and E. R. P. I. only.

I don't know whether the Graybar Company from 1926 to 1928 had an Employes' Benefit Fund. Assuming that the Graybar Company had the benefit plan and was wholly owned by Western Electric, they would have the same access to my department as the Western Electric would.

In my figures relating to Western Electric shown on Defendants' Exhibit 195, I did not include any of the employes of Graybar. I don't know the number of employes of Graybar from 1926 to 1929.

My figures under Western Electric do not include International Western Electric employes.

To my recollection, there was practically no contact by my department with the employes of International Western Electric from 1923 to 1925, and I am not sure whether services were rendered to it, for I was not here at that time. To the best of my knowledge no services were rendered.

Column entitled "Associated Companies" only includes employes of Associated Companies located in the United States. We have contact with the employes of the Bell Telephone Company of Canada. We have no contract with the North Electric. I don't know how many there are there but I will furnish a statement showing that we have never furnished any services to the employes of the Northern Electric.

Plaintiff states that the employes of the Graybar Company for the years 1926, 1927 and 1928 are as follows:

12/31/1926	2110
12/31/1927	1917
12/31/1928	1972

Plaintiff offers in evidence Defendants' Deposition Exhibit 193, to which defendant objected on the ground not proper and further on the ground of incompetency, irrelevancy and immateriality.

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* * * * * * *

[fol. 6718] CHARLES A. HEISS, recalled as a witness on behalf of the plaintiff, having been previously duly sworn, thereupon resumed the stand and further testified as follows:

Direct examination (continued).

By Mr. Blackman:

May 17, 1932.

The figures in column 1 of Plaintiff's Exhibit A-150 are taken directly and without change from column 4 of Exhibit 193. The figures in column 2 are taken directly and without change from Exhibit 193, from the column headed "Other". The figures in column 3 are computations made by me. The figure 10 appearing in the first portion of that column is a percentage figure developed by me. The figure 10 is to be

used to eliminate from column 2 that portion of the expense which should be excluded as applicable to non-telephone activities. The second half of column 3 shows merely the dollar figures obtained by applying the 10 per cent figure to the figures in the preceding column.

The figures in column 4 (there is very little difference between the amounts stated in column 3 and the amounts stated in column 2) are just the remainder after deducting column 3 from column 2.

Column 5 was taken directly and without change from Exhibit 193. They are the amounts which Mr. Carter, in that exhibit, allocated directly to the license contract.

Column 6 is the sum of the figures in column 4 and column 5. That is, column 6 purports to show the amounts which Mr. Carter allocated directly to the license contract, plus the proportion of the sums which he set up as indirect costs.

Column 7 is an allocation to the Long Lines of its fair proportion of the amount stated in column 6. The figures in the left hand section of column 7 are percentages. The figures in the right hand section are amounts computed by applying the percentages just mentioned to column 6. The percentage, let us say, for the year 1923 of 3.5 represents the [fol. 6719] ratio of the Long Lines employees to the total employees of the associate companies, including he Bell of Canada and the Long Lines. I took employees for the reason that the work of Mr. Carter—or rather of the Personnel Department—particularly the work which we are here discussing, that is, administration, personnel and special training, is all work which is in connection with employee relationships, and, therefore, in my opinion, the best basis for allocation to the Long Lines is the ratio of its employees to the total employees.

The other ratio of 5.08, in the line immediately below, is a composite ratio taking into consideration plant investment, employees, expenses and total revenues. I took a composite ratio for the purpose of allocating this particular type of work, that is, public relations work, to the Long Lines, for the reason that this public relations work is of a broad general character affecting all phases of the telephone business, principally the relations with our connecting companies, in matters of plant revenues, expenses and employees, and it semed to me that a composite ratio which took into consideration all of those factors produced a fair and proper allocation. The 5.08 is, as I said, a ratio which do

that. The application of these ratios to the figures immediately preceding gives you the figures in the right hand side of column 7. Then, deducting those figures from the figures in column 6 gives you what purports to be the amount to be allocated to the associate companies, including the Bell of Canada, but excluding the Long Lines. Having that figure, in column 8, to develop the fair share of that class of expense that should be allocated to the Chicago area of the Illinois Bell, I proceeded on the same basis as was followed in making an allocation to the Long Lines Department; that is, so far as the work of administration, personnel and special training is concerned, I used a ratio of employees; that is, comparing the employees of the Chicago area to the total employees of the associate companies, including the Bell of Canada, but excluding the Long Lines. For the year 1923, employees of the Chicago area were 7 per cent of the em- [fol. 6720] ployees of the associate companies, including the Bell of Canada. Now, the amount in the right hand section of column 9 is merely the application of the percentage figure in column 9 to column 8. In connection with the public relations expense, I used a composite ratio made up of plant investment, employees, expenses and telephone revenues. That was made up in the same way as I have described, but including stations. That ratio was 6.6 of the plant investment, employees, expenses, revenues and stations of the associate companies and the Bell of Canada, and 6.6 of column 8 gives you the $5,002 appearing at the right hand of column 9. I used one additional factor, stations, in developing this ratio in column 9. I did not use stations in the case of the Long Lines because the Long Lines had no stations, but I used them in the case of the allocation to the Chicago area, because I wanted to bring into the picture all of the factors which should be considered an allocation affecting all of the phases—an allocation of expenses affecting all phases of the business. And, therefore, I used this public relations factor, which is the one I am dealing with.

I have proceeded in precisely the same way in each of the years subsequent to 1923 as shown on this sheet. There is a small typographical error in the figures for the year 1925, in column 8. The amount of $13,914, appearing against public relations in column 8, should be $13,924, that is, $10 more; and that change affects the total in the same amount, making that total in column 8 for the year 1925, $303,806. No other

figures are affected by that. The amounts as carried out are correct.

In my opinion, the methods which I have followed are proper to develop the results which I purport to show.

In my opinion, these figures in this last column to the right on the paper which I have been describing, Plaintiff's Exhibit A-150 for identification, are the minimum amounts of expense of the Personnel Department for the matters referred to, which should be allocated to the Chicago area of the Illinois Bell Telephone Company.

Mr. Carter, in his testimony, referred to a change which [fol. 6721] had taken place in his department. That change took place May 1, 1923, so that practically throughout the period dealt with, the work of the department and the general character of its relations has been the same.

"Mr. Blackman: I offer the sheet in evidence as Exhibit A-150 for identification.

"Judge Wilkerson: Is the objection reserved?

"Mr. Haight: Yes, if the Court please.

"Judge Wilkerson: The ruling is reserved."

This sheet (marked for identification Plaintiff's Exhibit A-151) was prepared at my direction and under my supervision. It is an allocation to the Chicago area of its fair proportion of expenses incurred through the years, expenses incurred by the benefit and medical section of the Personnel Department, in rendering license contract services.

The figures in the first column on this sheet came directly and without change from Exhibit 193, already referred to. Such figures as appear in the second column also came from Exhibit 193 directly without change. The figures in column 3 are computations made by me. The figure 10 appearing against General Staff—the figure 10 in the case of the year 1923—is the same percentage which I have already explained, used in Exhibit A-150.

The figure 5 is a percentage which I have computed and used to eliminate that part of the expense or cost incurred by the Benefit and Medical Department, which was not of benefit to the associate companies and the Long Lines Department. The percentage is made up by taking into consideration the amounts eliminated by each department which were not of benefit to the associate companies and the Long Lines.

For instance, Dr. Jewett made an elimination from his

expense for work which was of benefit to other than the associate companies and the Long Lines. Mr. Gherardi, of the Department of Operation and Engineering, considered the matter; Mr. Page made an elimination; and other eliminations have been made of expense which is not of benefit to the associate companies and the Long Lines—for work not [fol. 6722] of benefit to the associate companies and Long Lines; and I have taken all of those eliminations and have computed them for the departments as a whole, and the percentage for the departments as a whole which should be eliminated, was about 3.5 or 4 per cent; and in order that there might not be any question, in order that all contingencies might be covered, I have used a 5 per cent figure for making the elimination. That is, there are five or six so-called general departments of the American Telephone and Telegraph Company, such as Dr. Jewett's Department of Development and Research, Mr. Gherardi's Department of Operation and Engineering, and so forth.

This work, benefit and medical, which is shown on this sheet, is the benefit and medical in connection with those departments, and it is confined to those departments.

The three items, benefit, medical and benefit payments, represent work done and expenses incurred in connection with the several general departments in New York, after excluding the Long Lines. What I have attempted to do here is to prorate these three items of expense on the same basis that the general expenses of the departments which they served were prorated—on the same basis as the general expenses as a whole were prorated. And, in my opinion, that is a fair and proper way to proceed.

This sheet is carried through in the same manner in which I carried through the previous sheet, with the same column numbers. The figures in column 4 are the remainders after deducting column 3 from column 2.

This sheet is developed in the same way. The columns headed 3, 4, 5, 6, 7 and 8 on this sheet have the same significance generally as they do on the preceding sheets. I might add that the amount in column 5 was taken directly, without change, from Exhibit 193. I have developed on this sheet the percentages in the same way as I did on Exhibit A-150. In my opinion the figures shown in the last column to the right on this sheet show a minimum allocation to the Chicago area of the Illinois Bell Com-

pany of its fair share of the expenses shown in the first [fol. 6723] column to the right on this sheet. I might add, as regards benefit, medical and benefit payments, Mr. Carter made no allocation, and the amount allocated is based on, or is according to the methods indicated in the notes at the foot of the sheet. That is, I made the allocation. I made it on the basis which I have just described. That is, the 5 per cent figure.

The figures for the year 1931 were not on Exhibit 193, and I therefore modify my statement already in the record that, in so far as 1931 is concerned, they were not on the exhibit which Mr. Carter introduced. I have added them here, and applied the same method of allocation as we used for the other years. I obtained these figures from the books of the Company, and proceeded in precisely the same way as in previous years, with Mr. Carter's approval. Each of those years subsequent to 1923 is dealt with in the same manner in which I dealt with 1923.

"Mr. Blackman: I offer this sheet, Plaintiff's Exhibit A-151 for identification, in evidence.

"Mr. Haight: May our objections be made at the conclusion of the cross-examination?

"Judge Wilkerson: Yes.

This sheet, Plaintiff's Exhibit A-152 for identification, was prepared at my direction and under my supervision. The sheet is merely a summary of the two sheets just discussed. It brings together the amounts shown in column 4 of Exhibit 193, total expense incurred for personnel, benefit and medical relations, and shows in the next column the amount thereof allocated to the Chicago area for each of the years 1923 to 1931, broken down as between expenditures, costs, incurred in connection with personnel relations, and those incurred in connection with medical and benefit work. Those personnel relation services were services that were rendered to the Illinois Bell Company, or in part directly to the Illinois Bell Company. The benefit and medical was only an indirect service to the Illinois Bell Company. That was a service to the general departments, which were, in turn, serving the Illinois Bell.

[fol. 6724] "Mr. Blackman: I offer this sheet, Plaintiff's Exhibit A-152 for identification, in evidence.

"Mr. Haight: We make the same reservation."

This sheet, Plaintiff's Exhibit A-153 for identification, was prepared at my direction and under my supervision. It is an allocation to the Chicago area of its fair proportion of the public relation expenses incurred in rendering license contract services for the years 1923 to 1931 inclusive. I am familiar with the work shown on this sheet. The work is shown on this sheet divided into two parts. The first is described as "Representation of Companies before Federal Government and National Trade Organizations". That work started in 1924, and has continued throughout the period, until just recently, there was a slight change in the organization of the work. The work represents, in part representation of the companies before the Interstate Commerce Commission in the matter of obtaining from that body approvals to purchases of property, and is work which is done entirely for the associate companies. Another part of that section deals with relations with such national organizations as the United States Chamber of Commerce, large local chambers of commerce, the International Chamber of Commerce; relations with the Department of Commerce, census bureaus, and also such national organizations as the American Management Association, the American Society of Sales Executives, work done in the broad general interest of the business of the associate companies and the Long Lines, and stimulating good relations, finding out the problems which confront different types of industry, and so on.

The second section pertains to the development of telephone use in different types of business. Now, that is work done in connection with the survey and study of the telephone needs of various kinds of businesses and ways of meeting them. For instance, we consider the best type of telephone service for farmers, and different lines of business, in the most effective distribution of products, and so on. That work began in 1929.

[fol. 6725] The figures in column 1 are taken from our books and records. The figures in column 2 are taken directly and without change from our books. The ratios appearing in the left hand section of column 3 represent percentages based on the composite ratio of plant, employees, expenses and total telephone revenues; that is, the character of the representation of the companies before the Federal Government and national trade organi-

zations is broad and general in character and affects all phases of the business, and in making the allocation a ratio was used which took into consideration that fact. In my opinion, that is the proper type of ratio to be used in making the allocation.

The ratio used for allocating to the Long Lines its fair share of the expenses of developing telephone use is revenue. That particular activity is developing revenue, and we have used a revenue ratio in making the allocation.

In the allocation to the Chicago area, we took into consideration the same factors; the representation of the companies before the Federal Government and national trade organizations was allocated by using the composite ratio just described.

The allocation of the second section of the work developing telephone use, was made on the basis of revenue.

In my opinion, the figures shown in the last column to the right on this sheet are the minimum figures for the fair share of the Chicago area of the Illinois Bell Telephone Company of the work and the expense shown on this sheet.

"Mr. Blackman: I offer Plaintiff's Exhibit A-153 for identification, in evidence."

This paper, Plaintiff's Exhibit A-154 for identification, was prepared at my direction and under my supervision. It purports to show an allocation to the Chicago area of its fair proportion of the Treasurer's Department expenses incurred in rendering license contract services during the years 1923 to 1931, inclusive.

"Mr. Blackman: I will offer in evidence the cross-examination of Mr. Blair-Smith in New York under the order of this Court for his examination.

[fol. 6726] "Judge Wilkerson: You may offer the rest of it, if you desire.

"Mr. Haight: Yes.

"Mr. Blackman: I offer the cross.

"Judge Wilkerson: And at the request of counsel for the defendants, the remainder is put into the record, for convenience in this place, but really as part of the defendants' case.

"Mr. Blackman: All right, sir."

(The deposition of H. Blair-Smith last above referred to was accordingly received in evidence, and made a part of this record.)

HUGH BLAIR-SMITH for defendants:

Direct examination.

By Mr. Haight:

I reside at Englewood, New Jersey. I am treasurer of the American Telephone and Telegraph Company and have been for nearly ten years, my office being at 195 Broadway. I also have an office at Boston, Mass.

My department's work is divided into three main divisions—Administration, Stock and Financial. The Administration Division is divided into Personnel, Office Services, including Mail Services and Stenographic Services. Stock Division is divided into Transfers and Registration, Bookkeeping and Dividend and Statistical Work.

There are two main divisions and then there are several subdivisions. The two main divisions are the transfer of stock and the records of stockholders, the issue of dividend checks and payment of dividends. That department also has charge of the registration and records of bonds outstanding. In other words, that department handles the issue and transfer of capital obligations and related records of the company.

The financial division is subdivided mainly into the work of the cashier, purchase and custody of securities and there is another division respecting verification of dividend bank accounts and paid interest coupons. My de- [fol. 6727] partment does about as much work for Long Lines as it does for associated companies, possibly a little more.

The assistant treasurer of American Telephone and Telegraph Company is the acting treasurer of Long Lines Department. It is not a division in my office, but it is necessary under the by-laws of the company for an assistant treasurer to be the treasurer of Long Lines. Long Lines is separately handled from the other three divisions and that has been true ever since I have been treasurer. The same organization in respect to divisions has existed practically from 1923 to 1930, inclusive. In the administration division in 1930 we had about 106.

I am familiar with the articles appearing in the Bell Telephone Quarterly for October of each of the years 1924, 1926, 1928, 1929 and 1930 which were written by me.

In the middle of this summer (1931) we made a study of the number of employes of the different divisions for 1930; Administrative Division 106; Stock Division 198; Financial Division 55. I don't know during the same year how many men were in the Long Lines Treasurer's work. The Treasurer of Long Lines is Mr. H. W. Roscoe. He has been in that position about a year. Mr. E. C. McAllister preceded him. I think 12 or 14 men work under Mr. Roscoe. During Mr. McAllister's time the number was fewer.

In the Administrative Division we have one bureau that is in charge of the development and improvement of department methods and preparations of instructions, analysis and research work necessary to advise associated companies in matters affecting treasury work, preparation of bulletins and letters advising associated companies of recommended practices and consultation by personal visits or correspondence of general treasury problems. There are 11 employes engaged in that work.

We have another bureau in charge of the development of treasury statistics, relation with bank commissioners on securities, special studies of finance and related questions, preparation of financial booklets and publications, [fol. 6728] special financial correspondence, listings of securities on exchanges; there are 14 employes so engaged.

Another bureau, of study and analysis of the various operations, including the preparation of work reports and cost statements reflecting general operating results, selection and training of employes and other personnel activities. Twelve employes.

Then we have another bureau for the departmental budget cost statement; storage and distribution of office supplies, messenger service, archives, other general services relating to the work of the department as a whole; 18 employes.

Another bureau is in charge of the receipt and dispatch of mail, maintenance of correspondence files, and the storage and cremation of records; 23 employes.

Then we have a general stenographic service for the de-

partment; 28 employes. That is all the Administrative Division.

In the Stock Division we have one bureau charged with the issue, registration and transfer of the capital stock of the company; the issue, registration, exchange, conversion and redemption of bonds and the maintenance of records relating to the funded indebtedness of the company; the payment of bond interest, contacts with the company's security holders by correspondence, by telephone or in person; assistance to associated companies in the engraving and issue of securities. There are 82 employes in that bureau.

A second bureau is in charge of the maintenance of accounts of stockholders, issue and delivery of dividend checks, stockholders' statistics and reports, mailing of circulars and notices to stockholders; returns of information required by law at the source; tax information and reports. There are 83 employes so engaged.

Another bureau is engaged in handling subscriptions of the Bell System employes for stock to be paid for by assignment of dividends and maintenance of related records. Verification of all lists of completed payments by employes; 13 employes.

A fourth bureau is the office at Boston, which performs [fol. 6729] mainly duties concerning transfer of stock and the payment of coupon interest and maturing obligations and does any other work that is required locally; 20 employes. That is all the work of the Stock Division.

The Financial Division has four main bureaus. The first one is engaged in the purchase and sale of temporary investment securities, custody of securities owned by the company, acceptance of subscriptions under the salary reduction provision of the employes' stock plan, for general department employes; safekeeping of Bell System and United States Government securities owned by employes and placed with the company by employes of the company for safekeeping; all related correspondence, records and reports. There are eight employes in that.

Another bureau, in charge of the receipt and disbursements of the company funds, including payrolls, verification of bank statements (except the dividend bank account), related correspondence, records, reports and similar ac-

tivities for Bell Telephone Securities Company and 195 Broadway Corporation. That has 15 employes.

The next bureau, verification of dividend bank statement, placing and withdrawal of bank stop payment orders for dividend checks, verification of paid bond interest, coupons, related correspondence and records, preparation and cremation of records for paid bonds and coupons; 17 employes.

We then have the Bell Telephone Securities Section, which is engaged in the purchase of American Telephone shares under the plan to assist small investors throughout the country. Application and accounts of purchases in the New York office; all related records and correspondence; employes and miscellaneous purchases and sales of securities. That has 15 employes. That is all for the Financial Division. That is as of August 25, 1931.

On January 1st of each year we had—

Administration Division, 1923	31
Stock Division	220
Financial Division	61

[fol. 6730] I have a chart which shows the number of employes as of January first of each year with the Treasury Department for years 1923 to 1931, both inclusive, for each of the three divisions and each of the bureaus of such division which said chart is offered in evidence as Defendant's Exhibit 5.

I have a chart which I use in my testimony in regard to the number of employes in the three principal divisions and in the principal bureaus thereof, which chart is offered in evidence as Defendants' Exhibit 6.

The character of the work in these various divisions and the various bureaus thereof has remained about the same during the years 1923 to date.

I have a document consisting of several typewritten sheets and dated April 30, 1931, generally with respect to expenditures by divisions from 1923 to 1930. It was prepared at about that time under the supervision of the assistant treasurer, Van Cise. This statement was prepared for the comptroller and in preparing it we prepared it along the same lines that he had asked us to observe in the preparation of it, the purpose being to set forth, first, the minimum amount of expenses incurred in the Treasury Department which w

felt was chargeable because of the license contract. The second basis was to add to those expenses the cost of security issues, extraordinary expenses that were incurred during the particular years 1923 to 1930, inclusive, and that is known as basis two.

The column entitled "Total Expenses" in the first page gives the total expenses of the General Department for each of those years. There is also included in that column "Unusual Security Issue Expenses." The next column is entitled "Charges to License Contract, Basis 1," which is the basis that I have previously described. We arrived at the figures opposite each year by taking the expenses of each division of the Treasury Department, starting with the Financial Division, and we included in the expenses chargeable under basis one to license contract, the following:

A. Handling the temporary investments.

[fol. 6731] B. Paying of salaries and the performance of keeping books and banking work for that part of General Department operations which are devoted to license contract services under the theory that we were working on.

C. Making of advances to associated companies and the handling of their notes, and

D. Handling of General Department employes, stock subscriptions under the Employes Stock Plan.

We then took the stock division expenses and we have included the cost of issuing of stock to employes of the Bell System, under the Employes Stock Plan, and the handling of subscriptions payable by the assignment of dividends in the Employees Stock Bureau, which has been operating only in 1930. We made certain eliminations from those expenses, including all of the cost of handling that work in connection with the employes of Western Electric, of Bell Telephone Securities Co., of the 195 and 205 Broadway Corporations, of E. R. P. I. We eliminated 70% of the expenses attached to the work for employes of Bell Telephone Laboratories and 15% of the cost performed for employes of the General Department, American Telephone and Telegraph Company.

We eliminated those percentages. Next we took the administrative expenses which appear on page 4, under the heading, "Allocation of Administrative Division Expenses." We took the expenses attaching to executive ad-

ministration and methods work allocated to the financial and stock divisions and in turn allocated to license contract activities. Also the methods and development work in behalf of associated companies, and third, the cost of the Bell System Treasurers Conference, which was held in 1927, and on that basis we allocated the expenses as the expenses chargeable under license contract, Basis 1.

In handling the security issues it was necessary to organize a new division and to bring in a large number of additional employes. We have usually had to employ or rent additional space. I think we began in 1924 to use space that was outside of our own offices. In organizing the work we have necessarily taken quite a number of the regular [fol. 6732] employes of the department and placed them in charge of the various activities and drawn in new people to perform the regular activities performed by those whom we had withdrawn to the stock issue. The costs that we have kept of our stock issues, and we have in our records kept those costs, are such as we have incurred in addition to the normal expenses of the department.

Those expenses of the various divisions, excluding the extraordinary expenses of the security issues, appear in the figures contained in those papers. They appear on page 2 and in the first column there is shown the expenses of the Financial Division, excluding the security issue expenses. On page 4 in the top table are shown the total expenses of the stock division, excluding security issue expenses, and at the bottom of that page are shown the total expenses of the Administration Division, excluding security issue expenses.

There is a large sheet entitled "American Telephone and Telegraph, Excluding Long Lines Department," (entitled Exhibit A, which is a summary of what has gone before). There are the various initials which constitute the key, the key being shown at the bottom of the sheet.

On page 2, referring to the distribution of Financial Division Expenses and the first column, in addition to salaries there goes in rent, stationery, telephone service, postage and stationery and other miscellaneous expenses. The same is true as to other divisions of the department in this exhibit.

Additional rent is included under "Expenses Charged to License Contract" as to Basis 2, but not as to Basis 1.

When Basis 1 is employed in the figures relating to each of those three divisions rent is included in Exhibit A, specifically allocated "Other," column 3.

(Paper described by the witness is marked Defendants' Deposition Exhibit 7, for identification.)

My department includes among its employes those that receive the dividends from stock of licensee companies owned by American Telephone and Telegraph Company.

I believe the statements, charts and graphs in the following articles, prepared by me, are correct: Article in the [fol. 6733] October, 1930, issue of Bell Telephone Quarterly, pages 250-261. Article in the October, 1929, issue of Bell Telephone Quarterly entitled "1929 Convertible Bond Offer of American Telephone and Telegraph Company," pages 316 to 327. Article in the October, 1928, issue of Bell Telephone Quarterly entitled "1928 Stock Offer of the American Telephone and Telegraph Company," pages 253-265. Article in the October, 1926, issue of Bell Telephone Quarterly entitled "1926 Stock Issue of the American Telephone and Telegraph Company," pages 253-265. Article in the October, 1924, issue of Bell Telephone Quarterly entitled "1924 Stock Issue of the American Telephone and Telegraph Company," pages 262-269.

(Articles by witness in various October issues of Bell Telephone Quarterly for the years above mentioned, 1924, 1926, 1928, 1929 and 1930, were marked for identification as Defendants' Deposition Exhibits 8, 9, 10, 11 and 12.)

Referring to the peak period mentioned in those various issues of the Bell Quarterly, we start out with a small number of extras and go up to the peak and gradually go down until we get rid of all of them. The total expenses in regard to each appear in Defendants' Deposition, Exhibit 7.

Another thing I want to explain is that some of these temporaries went into the regular organization to replace the permanents that went out and went into the stock organization. The number of employes at the peak issue of the stock work was as follows:

1924, 480
1926, 636
1928, 705
1929, 607
1930, 950

The total expenses with regard to each of these appear in Defendant's Exhibit 7.

(Mr. Blackman reserved right to make cross-examination of Mr. Blair-Smith later.)

[fol. 6734] HUGH BLAIR-SMITH, recalled:

Cross-examination.

By Mr. Blackman:

The Treasury Department of American Telephone and Telegraph Company has the custody of the cash and the securities of the company. It receives and disburses the funds, providing financial services to the several general departments; this includes the payment of payrolls and expenses. It makes advances to the associated companies, invests the surplus cash on hand in short time securities so as to have it always liquid and available. It issues, transfers and registers the securities of the company, including the issue to the employees of stock under the employee stock plan, and it conducts financial research and development methods for improving practices in our own and in the offices of the associated treasurers. It issues letters and bulletins concerning those practices, and it also engages in personal consultations and in correspondence with the treasurers of the associated companies and their offices in specific questions.

During the period January 1, 1923, to December 31, 1931, my department obtained in the way of new financing $1,820,000,000. In that period the company has accumulated in undivided profits $293,000,000. As to what was done with the money,—first we advanced to the associated companies $1,438,000,000, later taking their securities for that and we now hold those securities. To the Long Lines Department of the company we advanced $306,000,000 for the construction of property. To the Western Electric Company we advanced $89,000,000. We added through advances to the Bell Telephone Securities Company, $4,000,000. We advanced to the 195 Broadway Corporation, which is the corporation owning the Headquarters Building, an additional $8,000,000 in connection with building operations, and we retired debt of the company to an amount of $133,000,000 and the balance of the money amounting to about

$135,000,000 was added to the liquid funds of the company. We still have that, or we had it January 1. That is the [fol. 6735] amount of liquid funds over and above the amount that we had on January 1, 1923.

During the period that we are talking about from 1923 to 1931, we had three issues of debentures, and were concerned with five stock issues to stockholders, and one issue of convertible bonds, to stockholders.

The three debenture issues do not involve as much detail as do the offers of securities to stockholders. These debenture issues were sold to syndicates and all in bulk, and the amount of work in connection with those,—take, for instance, the 1930 issue of $150,000,000,—that is done in a short period of time.

We first have to have what we call temporary bonds printed. These are delivered to the syndicate, and then we receive our money.

As soon as we can after that, we have definitive bonds prepared, and these definitive bonds, as soon as executed, are given in exchange for the temporary bonds. The bond forms, there are six, in this issue of $150,000,000 we had to issue altogether about 152,000 pieces.

In connection with stock issues which are made to the stockholders, we have a much more complicated operation. I should like to describe the 1930 issue to give you an idea of it.

At the time of the issue, there were 508,000 stockholders involved. It required that we send to each of these stockholders a notice telling him of the issue and describing its terms.

Then after the record date it was necessary for us to issue and deliver to stockholders some 750,000 warrants evidencing their subscription rights. With these we sent another circular outlining, in as much of an A. B. C. detail as possible, how to exercise these rights or how to dispose of them, telling them by all means not to sacrifice them because they had money value.

We did a great deal of work in educating the stockholders to use and understand the rights.

We organized immediately a separate unit, we got 45,000 square feet of floor space, equipped it with all that is neces- [fol. 6736] sary in an office, desks, chairs, typewriters, filing cabinets, stationery, adding machines, etc.

We answered some 25,000 letters of inquiry. We took in 283,000 separate subscriptions. We made innumerable transfers of warrants from one person to another. We received in cash during the few months $225,000,000—practically all of which we put into short term, high grade securities, so as to keep that liquid and always available, so that when associated companies needed the money it would be there.

To do this work it was necessary for us to interview something over 3,000 employees, or prospective employees, out of whom we selected about 1,000, and it was necessary to give those employees a very excellent training, so that they might do their work accurately.

Of course, in doing this work—it is all very definite and must be done accurately and precisely,—it is necessary not only to do the work, but to have verifications of the work going on at all times.

It is money that we are dealing with and negotiable paper of value that we are issuing, and we must, of course, not only do it as cheaply as possible, but we must also do it accurately.

As to the interest rates we were able to get on the short term investments I spoke of, they depend on the period when you have the money available. In 1930 we started getting fairly good interest rates for that paper—2¾ per cent, tax exempt—but as they matured, we got to the point where we were getting less than 1 per cent, while the funds were being carried.

It is very necessary in carrying large sums of money like that to keep it in the highest grade, ever maturing securities, so as to avoid losses if you have to have the money. We want the securities to mature so that they will be paid off at their face value and we know then what we are getting. Our first consideration is safety, and with due regard to safety, we did get the best trades we were able to make. We had four issues of stock during this period and the winding up of a fifth stock issue which started in 1922 and came over, and the final payments of which were made in 1923.

[fol. 6737] Also during that period, we had an offer of $219,000,000 of convertible bonds of the company. The handling of the convertible bonds and the other stock issues involved the same routine that I have described in connection with the 1930 stock issue.

When the stock is sold and issued, the work of the company is by no means finished. There is then an annual service, in fact a day-to-day service, that is necessary in order to take care of the securities. For illustration—in the financing, we have developed a list of about 125,000 bondholders. Those bondholders can exchange coupon bonds for registered bonds, or they can have the coupon bonds registered as to principal, or they can exchange bonds of one denomination for bonds of another denomination, and the company is the agency that carries on that work—the Treasurer's department carries on those exchanges.

We have also developed up to December 31, 1931, a list of 645,000 stockholders.

We had that many different stockholders on that date. We have considerably more now.

Those stockholders are continually changing their holdings in the stock and changing their addresses. During the nine-year period, as an illustration, we had 875,000 transfers of stock. In connection with those transfers, we canceled 2,100,000 stock certificates and we issued 1,800,000 new stock certificates.

The bondholders holding coupon bonds have interest coupons attached to their bonds and these coupons, as you know, are cut off at periods of six months and they collect their interest through surrendering those. The Treasury Department pays the coupons as they mature and are presented.

During the nine-year period we paid 7,325,000 coupons.

The stockholders are entitled, likewise, to dividends declared, and these have always been paid quarterly.

During that period they were paid quarterly. We issued about 14,800,000 dividend checks which must be delivered through the mails to the proper addresses and when paid [fol. 6738] must be checked up, verified, and proper accounting records kept, and from the payments made we must make reports to the Federal Government of the information at the source as to income taxes and also to some of the State Governments that require the same kind of service.

During that period, in handling the work in the Treasury Department we received and dispatched 3,000,000 letters. I think that gives you an indication of the amount of work that goes on day to day in the office.

The total amount expended by the Treasury Department

for doing its work of all classes in the nine years was $13,034,000. It was as follows in the separate years:

1923	$954,861
1924	1,258,097
1925	944,914
1926	1,381,752
1927	1,103,130
1928	1,648,226
1929	1,591,063
1930	2,499,674
1931	1,652,282

The total cost of handling the new security issues was $3,154,000 for the nine-year period. For each of the years separately it was:

1923	$74,255
1924	389,093
1925	55,773
1926	444,595
1927	80,575
1928	588,071
1929	404,130
1930	979,305
1931	138,122

The total cost of the financial service rendered to the General Departments, American Telephone and Telegraph Company, was $469,000. For each of the years separately it was:

[fol. 6739]	1923	$26,130
	1924	36,188
	1925	42,253
	1926	43,714
	1927	54,884
	1928	56,617
	1929	61,452
	1930	71,850
	1931	76,325

Under the employees' stock plan the cost of handling our work was approximately $600,000. For each of the years separately it was:

1923	$24,526
1924	41,871
1925	11,136
1926	17,634
1927	51,986
1928	55,496
1929	36,384
1930	178,091
1931	183,614

The expense in my department during the period in question in connection with advice to the associated companies in regard to their treasury work, getting out bulletins for them and their guidance, etc., was $210,000. By years it was:

1923	$8,677
1924	10,445
1925	15,856
1926	18,219
1927	32,687
1928	25,373
1929	29,216
1930	34,410
1931	34,592

The cost of handling the custody of the company's funds and the advances thereof to the associated companies during the period was $721,000. By years it was:

[fol. 6740]

1923	$40,158
1924	55,614
1925	64,934
1926	67,179
1927	84,343
1928	87,009
1929	94,437
1930	110,418
1931	117,296

With respect to the nature of the advisory work to associated companies,—the main problem which the licensee companies have in the Treasury Department is the drawing in of funds which are collected throughout the territory and deposited in banks, and getting them into headquarters cities so that they are ready for disbursement, and then the disbursing of the funds.

Our studies have been in connection with banking relations, in dealing with the balances justified in the various points, with the safety of the banks and with the methods of getting the money in.

They have also been in connection with the disbursing of the money and with the writing of payroll checks and the delivery of payroll checks.

They have been in connection with the requirements of the transfers of stock of those companies and the servicing of the bonds which are outstanding, the paying of the coupons, the accounting for the paid coupons, the cremation of those coupons and dealing with the trustees in connection with that cremation, and they have been with many other general and related problems that go on in the ordinary work in the Treasury Department.

The purpose of all of it is to work in the best and most economical way and to conserve the funds of the company, to get them ready for disbursement as quickly as possible, and to use as little money in carrying on the transactions of the company as is justified. That is accuracy and economy.

The amounts that I have stated total about 40 per cent of [fol. 6741] the expenses of my department, which leaves 60 per cent, or about $7,880,000. That expense is very largely concerned in servicing of the outstanding securities of American Telephone and Telegraph Company, the transfer of the stock, handling the dividends, paying interest coupons. That is something that an ordinary corporation would have to do that has securities outstanding in bulk—in numerous hands. That is, the treasurer's office of any corporation with a large list of stockholders would have as part of its work the work that I have referred to here. That cost was $7,879,000 for the nine-year period.

The employees' stock plan was first established as of May 1, 1921. That is a plan offered to all the employees of the Bell System, whereby those of six months' services or more are entitled to subscribe to stock on the basis of pay.

There is also a provision in the plan which authorizes those who have secured shares under any of the plans of the American Telephone and Telegraph Company and hold those shares, to subscribe for additional shares and assign the dividends in payment for them. We handle the issue of the stock and all the subscriptions of the General Department employees.

The treasurers of the associated companies handle the subscriptions of the employees of the associated companies up to the point where the shares are fully paid for. We issue the stock and we also keep full records of the dividends, assignments and subscriptions. The treasurers of the associated companies do not keep those records. We keep them in the Treasury Department. The plan is that they may pay either $3.00 or $4.00 per share per month, or, if they pay weekly, they pay 75 cents or $1.00 per week for four weeks of each month, and they cannot pay for it as long as they are employees otherwise than in that way, so that at the present time it runs over a period of around from 36 to 40 months. During that period the employee has a right at any time to cancel his subscription and to receive back the amount of money that has been credited to his account through deductions of pay or through assignment of dividends, plus interest on that money. Recently the stock has [fol. 6742] fallen below the subscription price and there have been a large number of cancellations.

When the plan was first adopted, the employee was required to pay par or $100 per share. It has been changed several times; first change was from $100 to $105; then to $110; then $115; then $118; then $121; then $125; then $130 and lastly $150.

Prior to 1921 there had been three employees' stock plans in effect. Also prior to that time the employees to whom stock was issued including employees of the subsidiary companies. That plan was carried out by delivery to employees of only such stock as has already been issued; that is, reacquired and placed in the hands of trustees. There was a change in the 1921 plan whereby the stock was issued to employees might be either issued from the treasurer or picked up in the market and transferred to the employee.

Prior to the adoption of the 1921 plan the law of New York State did not permit stock to be issued to the employees of subsidiary companies. There was a law shortly before 1921 which authorized stock to be issued to employees of the company but not to the employees of the subsidiary companies, and as soon as the law was changed permitting it, the terms of the law were embodied, or at least were taken advantage of by American Telephone and Telegraph Company in the adoption of the plan of May 1, 1921.

The objects of these several stock plans were to benefit the employee and hold him to the service of the company,

to prevent turn-over, which is expensive—labor turn-over which is expensive to all companies. It was to give the employee an interest in the business and cause him to be more interested in his work and in the service of the company. The plans without question, had that effect. Very generally the employees of the Illinois Bell have subscribed for the stock of American Telephone and Telegraph Company under this plan.

Basing the values of the stock on the market price on the day that the employees were entitled to receive the shares, [fol. 6743] the market value of the stock issued to employees of Illinois Bell has been in excess of five million dollars over the subscription price. That is if they had turned around and sold the stock on the day on which they were entitled to receive it they would have made a profit of more than $5,000,000 over and above their salaries.

I am familiar with the general nature of the work that goes on in the offices of the treasurers of the associated companies. That work differs from the work done in the office of the treasurer of an ordinary commercial or utilities company in three main particulars—first, when the treasurer of an associated company needs money, as they often do, because all of the companies have been growing during this nine-year period, they have arranged with the American Telephone and Telegraph Company for advances to be made to them, and those advances have been made to them when they were desired, and consequently they have not been required to carry these amounts on hand, idle. They have been able to get them just at the moment that they have asked for them.

Second, through the fact that they have gotten these from one source their securities have been issued to one holder, the American Telephone and Telegraph Company, and they generally have only one stockholder. Some of them have a few more, but the bulk of the stock of those associated companies that is outstanding is in the hands of American Telephone and Telegraph Company, so that with one stockholder they are not required, they do not have to have elaborate stock books to make transfers, to pay dividend checks to a large number of people, and consequently they save the expenses that would otherwise be incurred to do those operations.

The third difference is the fact that because the treasurer's office of American Telephone and Telegraph Com-

pany maintains a staff for research and methods, they are not put to the expense of doing so themselves. When they want studies made, when they want special information, they write to us or they talk with us about it and they get the services from the treasurer's office.

[fol. 6744] Many of the expenses incurred in our office are for particular services directly assignable to the associated companies and during the nine-year period amounted to $1,720,000.

By years they are:

1923	$85,363
1924	123,205
1925	116,199
1926	127,103
1927	194,147
1928	193,483
1929	191,899
1930	337,044
1931	351,456

The remaining services are very largely for the benefit of the associated companies to the extent of 90 per cent to 94 per cent. The larger part of the services that are not directly assigned as just stated are for the services rendered in getting money and in paying out money in handling the temporary investments and keeping them invested in high class securities and in servicing the securities of American Telephone and Telegraph Company now outstanding,—the registration of dividends, etc. The 6 per cent in the part of our services that I have eliminated as not of direct benefit to the associated companies although they do benefit to some extent.

The amount of money that has been raised by American Telephone and Telegraph Company and invested in Western Electric, in Bell Telephone Securities Company, in Bell Laboratories and in the 195 Broadway Corporation, is about 6 per cent of the assets of American Telephone and Telegraph Company. That is where I get my 6 per cent.

The assets of the associated companies represent more than 90 per cent of the total assets of American Telephone and Telegraph Company, and I have figured that the expenses of my department follow those assets.

The 195 Broadway Corporation is the holder of title and

the operating unit for handling the Headquarters Building of American Telephone and Telegraph Company.
[fol. 6745] So that to the extent that the occupants are rendering service to the associated companies, the expense of my department in connection with that company should fairly be said to apply to the associated companies, to the extent that it is only a matter of financing that is involved because any services performed for the 195 Broadway Corporation are charged to that corporation and the accounts of the 195 Broadway Corporation are entirely separate from the accounts of American Telephone and Telegraph Company. The expenses of my office consist in getting the money for them that is all that remains in my expenses.

The Bell Telephone Securities Company has received advances from American Telephone and Telegraph Company in order to carry on its work. American Telephone and Telegraph Company owns the entire amount of the capital stock of Bell Telephone Securities Company outstanding, amounting to $1,000,000. They hold advances at the present time of about $6,500,000.

During the period that we have been discussing the amount of money advanced to Bell Telephone Securities Company is $4,000,000 more than it was at the beginning of the period. Getting the money and handling it in connection with those advances constitute practically all we have done for that company. We have attempted to eliminate in the figures I have given you the expenses of the Bell Telephone Securities Company. They are taken out of the expenses directly apportionable. There is some little expense included in the totals in the nature of rent,—otherwise the expenses are all taken out. The Bell Telephone Securities Company undertakes to inform the public of the securities of the Bell System. It issues yearly a pamphlet in which a description is given of every Bell Telephone security issued and outstanding. It tells the story of the Bell Telephone System, of the soundness of its securities, and that has a very wide distribution. It is sent to bankers, brokers and to individuals who are interested in it.

The Bell Telephone Securities Company also issues and distributes widely a pamphlet known as "Some Financial [fol. 6746] Facts," which tells the story of the Bell System for about fifty years.

The Bell Telephone Securities Company undertakes to

distribute the stock of American Telephone and Telegraph Company as broadly and as widely as possible, and it performs for investors the service of buying American Telephone and Telegraph Company stock for them and allowing them to pay for it either in one payment or in installments over a period of months.

It is all for the benefit of American Telephone and Telegraph Company and the Bell System, generally.

The Bell Securities Company does not deal in securities of any other company or companies except the Bell System. The services that we performed for the Western Electric are mainly in the fact that we have advanced to Western Electric or have bought stock of that company and through those operations have furnished that company with about $157,000,000,—during the nine-year period $89,000,000. The cost of the financing of Western Electric mentioned is in what we term the "Residue of Expenses" and the $7,880,000 of extra expense incurred over the nine-year period has not been charged as expenses directly allocated to the license contract. The Associated Companies get the benefit of some of that indirectly.

The fact that we allow the employees of Western Electric to participate in the stock plan is of substantially value indirectly to the Associated Companies in that it cuts down the costs of manufacture by Western Electric in behalf of the Associated Companies, or cuts down the costs of goods which it manufactures for the Associated Companies.

The financing that we do for Western Electric furnishes the money on the cheapest basis that the Western Electric could get it. American Telephone and Telegraph Company does not buy, sell or deal in securities in the accepted sense. It makes advances to the Associated Companies and takes their securities. It does not sell them. It does not deal in securities of any companies. It is not a dealer in securities. [fol. 6747] It does not make purchases of any securities except the securities of the Associated Companies and its own subsidiaries. In one case I recall it bought some stock of the Radio Corporation of America but the amount that it held during this period was less than $160,000 and that was only part of the period when it had that. Its surplus funds that it is not needing at the moment for advances to its subsidiary companies, it invests usually in Government certificates, bills, short term securities and in tax notes of very high grade issued by cities and states.

Redirect examination.

By Mr. Goldstein:

The licensees get the benefit of the financing by American Telephone and Telegraph Company of Western Electric because Western Electric gets cheap money and there is also a more satisfactory personnel of Western Electric.

American Telephone and Telegraph Company finances the cash requirements of the licensees which requirements are mainly for construction purposes for improvements of their plant account. I don't know what percentage of the purchases by licensees from Western Electric go into plant account. I don't know how much the Western Electric receives in cash from the licensees each year for purchases made. I know how much the licensees require from American Telephone and Telegraph Company but not the amount that they pay to Western Electric.

I should say that the Western Electric would be satisfied by this plan that the licensees' credit is good and enables them to do business without considering the question of costs of credits, knowing that the licensees will have all the cash available for all requirements, and that the money will be forthcoming. I don't know what the cost of credit is ordinarily to a manufacturer.

$157,000,000 represents the total investment of American Telephone and Telegraph Company in Western Electric to December 31, 1931.

That includes temporary advances and money of all kinds. [fol. 6748] It is the total amount as of December 31, 1931. The American Telephone and Telegraph Company had advanced to the licensees $1,438,000,000. When I say advanced that amount of money, I mean that the general process is to advance them the money, loan them the money when they require it, ask for it, or arrange for it. If in a particular year the licensee did not have any borrowings and did not owe the American Telephone and Telegraph Company any money, I would include that in the departmental expense also. So that $1,438,000,000 is really the amount of money which the American Telephone and Telegraph Company used to purchase stock as a stockholder of the licensees and to advance money in the form of credit obligations, if in the original case they issued stock. It is in effect true that where the licensees owed the American

Telephone and Telegraph Company money when the stock issue was authorized, that the American Company would accept the stock and pay for the stock by cancelling the note. All of the service of the American Telephone and Telegraph Company is to raise this $1,400,000,000 for the licensee. The expense of the department incurred in raising that money I gave as $3,154,000. It cost the American Company that $3,000,000 to raise $1,820,000,000 used to purchase stock, and also to lend money to the subsidiary companies. The purpose of the Bell Telephone Securities Company is the acquainting of investors with the facts regarding the outstanding issues of the subsidiary companies and of the American Telephone and Telegraph Company. Outside of the one issue of bonds in 1923 of $50,000,000, the Illinois Bell Company has made several issues of stock and that stock was subscribed for to the extent of 99 per cent, or whatever the percentage is by the American Telephone and Telegraph Company. So that other than the minority interest in stock there were no other public issues made from 1923-1931 other than the $50,000,000 bond issue which was sold to J. P. Morgan & Company. The direct acquainting of the issues of the Bell System, so far as the Illinois Bell issues are concerned, would be to acquaint the investors with the merits of that bond issue. The Illinois Bell sold that bond issue to J. P. Morgan & Company. I don't recall [fol. 6749] the discount paid, but there was some discount. I should say the American Telephone and Telegraph Company holds approximately 90 to 92 per cent of the stock of all of the licensee companies in the Bell System. So that the Bell Telephone Securities Company acquainting investors with the merits of the Bell System Licensees, refers to the 8 per cent of the stock outstanding and all of the bonds, which bonds amount to about $500,000,000.

They were in each case sold to bankers, American Telephone and Telegraph Company not buying them. I know there was a difference between the price at which the syndicate bought them and the price at which they offered them to the public.

During the period American Telephone and Telegraph Company sold to the bankers three debenture issues at less than par, and during the same period American Telephone and Telegraph Company sold to the public not through

bankers but through its stockholders, an issue of bonds of $215,000,000 in 1929 and issues of stock of $800,000,000 or $900,000,000, which bonds and stocks were sold to stockholders at par. Some parts of the unsubscribed portions of bonds and stock were sold to the public. None was sold below par.

In 1921 the Bell Securities Company was organized, its purpose being at that time merely to disseminate information to the existing investors of the Bell System. In 1923 the Bell Securities undertook to interest investors in the stock of American Telephone and Telegraph Company through the employees of the Bell System largely. The Bell Telephone Securities Company is a skeleton organization which directs the work of the employees of the licensee companies and the work of disseminating information to investors, and has done so for several years.

That work began the middle part of the nine-year period. Beginning with 1923 the number of stockholders in American Telephone and Telegraph Company started to grow and it has been growing right along. In 1921 the number of stockholders was about 160,000; at the end of 1931, [fol. 6750] 645,000. I consider it of benefit to the Bell System to have widespread ownership of American Telephone and Telegraph Company stock and it was of benefit to American Telephone and Telegraph Company because of the ability to secure the funds needed to carry on its work and furnish money to the Associated Companies of American Telephone and Telegraph Company. The American Telephone and Telegraph Company could have secured funds by selling the stock to bankers. Between 1921 and 1930 we have never offered stock to bankers, except as stockholders.

The purpose of having a widespread ownership was to get money. The employees of the Bell System in connection with sales of stock assisted those who asked for assistance at the business offices of the Associated Companies. Some employees did undertake to reach the investor before the investor came to the office and asked for the assistance, which work was done at the direction of the president of the subsidiary company.

At the suggestion of one of the presidents of one of the subsidiary companies, we made a study to see what could be done to avoid losses to the stockholders, who are all patrons of the company locally, the president making the

statement that it would be of distinct public advantage, an advantage of public relations if the ignorant stockholder were protected in his rights, and we developed the plan whereby, during each stock issue we would secure the names of the stockholders who at the last offer had failed to take advantage, and the presidents of the associated companies were told that those cards were available for them if they cared to use the information, and then they asked for the information and all of them had it given to them and they, on their own initiative, turned those cards over to their people to ferret out those stockholders to see that they lost nothing.

Mr. McCulloch of the New York Telephone Company suggested it. He would be interested in the sale of the stock of American Telephone and Telegraph Company because it would give him an excellent opportunity of making an excellent friend in his own territory. He would not be interested [fol. 6751] in anything outside of the Bell System. He is interested in the general well-being of the Bell System and in seeing that funds are raised to take care of his company's requirements, the sale of stock of American Telephone and Telegraph Company being the main source. The issue of stock of his company to American Telephone and Telegraph Company as a stockholder is the medium by which funds are raised for the New York Company. He is interested in the American Telephone and Telegraph Company buying stock of the local company as a medium of getting his funds. He is also interested in seeing that American Telephone and Telegraph Company has enough money to buy the stock of the local company. As to whether he would be interested in seeing that the minority stockholders of Illinois Bell also have money to buy the stock of the Illinois Bell, I don't think that would reach him. If he had them in this locality, I think he would serve them. If he had the stockholders of the Illinois Bell here and they went to him for help, he would give it to them.

The licensee company is interested in raising money; so, if it issues stock to raise money, then it is interested in selling the stock. The Illinois Bell 1923-30 was interested in selling its stock. The purchasers of the stock would be the stockholders of the Illinois Bell. The Illinois Bell is therefore interested in seeing that the stockholders purchase that stock. I assume that the Illinois Bell is then interested in seeing that the largest purchaser of that stock,

American Telephone and Telegraph Company, has the money called for to buy the stock. There are minority stockholders of the Illinois Bell, but American Telephone and Telegraph Company owns 99 per cent plus of the stock.

I cannot say whether the Illinois Bell concerns itself at all with the ability of the minority stockholder to purchase any portion of its stock. I don't know whether the ordinary corporation takes any steps to help its stockholders to raise money to purchase its stock. American Telephone and Telegraph Company never took any steps to help people raise money to buy its stock. If the employees of the Bell System who purchased stock had sold the stock on the day of [fol. 6752] purchase according to the market prices of that stock at that time, there would have been a profit to those employees of $5,000,000. The first subscription for employees was at par. After that it went up. The stockholders of American Telephone and Telegraph Company that subscribed to issues from 1923 paid par for the stock. I have never determined what the market price of the stock was on the date when they purchased that stock at par, and I never determined how much profit they would have made if they had sold their stock on the day that they purchased it at par. If the licensees wanted to give stock for the advances, we took it. If they wanted to give notes, we took those. I am sure that the Illinois Bell got such consents as were necessary of the Illinois Commerce Commission in connection with each stock issue 1923-1930.

As to who determined whether a licensee company was to give note or stock for the moneys which American Telephone and Telegraph Company turned over to it, I should say it would be a negotiation with the American Company as to which they would take. The negotiations would not be carried on with me.

As to the amount of money required by the licensee companies, we know at the time the provisional estimates are completed as to the approximate amount that would be required. We get that information from the associated companies. We get it in the form of a statement from the comptroller of the American Company. He must get it from the reports that are sent by the associated companies, —provisional estimates. The comptroller tabulates the approximate amount of money that will be required by each of the associated companies for that year. That tabulation is received by me some time after the first of the year. The

comptroller advises me whether for the money advanced I am to take stock, a note or an open account. The authorization for each advance or each payment to a licensee comes from the comptroller, and at that time I am advised whether to take a note or to take stock. I do not get a notification [fol. 6753] in advance of the actual transaction of the probable amount of stock of open accounts or notes which will come from the financing for the succeeding calendar year. The comptroller gives me an estimate of the amount of money I need to have on hand in order to fill all requirements.

I used the same amount of money to pay the associated companies $50,000 or $500,000, whether they give us a note for it or whether they give us stock.

The three stock issues and the one bond issue I testified about were 99 per cent subscribed. I think in the last one there is less than one-third of 1 per cent unsubscribed.

An ordinary corporation of large size would incur expense of the character of the $7,000,000 expense I testified about. I think that if an ordinary corporation wanted to get the amounts of money that the American Telephone and Telegraph Company has gotten, it would have to sell its securities in the same manner the American Telephone and Telegraph Company did. I do not know of any large corporation that sells its securities through bankers. Many corporations sell their bonds to bankers. I think that the usual method followed by corporations in disposing of bonds is to sell them to bankers. I would assume the same condition existed with the other corporation,—ordinary corporation,—as existed in the case of American Telephone and Telegraph Company. By that I mean I assume they sell their bonds through bankers and sell their stocks to the public.

The bond issue of 1929 of American Telephone and Telegraph Company was a convertible bond issue but it was sold to stockholders. Not all temporary funds are invested in Government securities. Some are invested in notes issued in anticipation of taxes by municipalities. We did not buy any railroad or utility bonds.

The Bell Securities Company performed a service to the Bell System in widely distributing the stock of American Telephone and Telegraph Company. Wide distribution of stock furnishes a source of money supply,—people that know the security and are willing to put more money into

[fol. 6754] the security. Diversity of ownership is preferable to a concentrated ownership by a few people because no few people could possibly own a company of this size. We also think it of benefit to have American Telephone and Telegraph Company stock owned in the locality in which the service is rendered to foster public opinion.

I have not seen the contract between the American Telephone and Telegraph Company and the Licensee companies in connection with the stock sold to the employees of each of the companies, but it must provide that the services performed by the Licensee Companies in connection with the stock shall be without compensation from the American Telephone and Telegraph Company because the licensee company is the only person that can perform service in connection with the sale of American Telephone and Telegraph Company stock to licensee employees. The licensee company does not get paid from the American Telephone and Telegraph Company for this service but they get their expenses from the Bell Telephone Securities Company; that is, any extraordinary expense that they are put to in handling, such as for postage, printing, etc.

I cannot definitely answer whether any portion of the time of an employee of a licensee company consumed in selling stock, is paid for by the Bell Securities Company.

We make up monthly and annual reports of the cash receipts and the cash disbursements. The same cash being counted several times during the year. The moneys I stated went to the licensee companies, went there and stayed there. I cannot say definitely whether that came alone from the sale of securities, because American Telephone and Telegraph Company during that period accumulated $293,000,000 in undivided profits. Both the money from the proceeds of the sale of securities, the proceeds of the securities and undivided profits were intermingled in the treasury, and we don't know which went where.

I considered 195 Broadway Corporation as a separate corporation, apart from the Bell System in the treatment I gave to the expenses. All expenses of that company are in [fol. 6755] the expense accounts of that company and no part of those expenses have gone into the expenses of the treasury department. All money advanced to that company was considered when I made the elimination of 6 per cent of the residue of expenses; that is, I eliminated all advances to 195 Broadway.

The Bell Telephone Laboratories I also treated as outside the Bell System, just as I did the 195 Broadway, and in the 6 per cent elimination I eliminated that portion of the expense attributable to investments. I treated Bell Telephone Securities Company the same way.

Employees during the entire period cancelled subscriptions to stock and did so when the market price was above the subscription price. They received back the amount of the deductions or assignment of dividends, plus interest. That rate of interest has varied. They got back all their principal. We had cancellations of subscriptions when the market was up and also when the market was down.

Recross examination.

By Mr. Blackman:

The $7,000,000 expense which I spoke of was character of expense that any large company that had its stock well scattered would be bound to incur. That is, it would incur it not to the same extent but ratably in proportion to the amount of stock it had out.

Redirect examination.

By Mr. Goldstein:

If American Telephone and Telegraph Company wants to raise additional funds, it is particularly interested in having its stock widely scattered. If it does not care to raise funds from its stockholders, it would not be concerned. The associated companies, if they expected to get money from the American Company, would be concerned. From the standpoint of public relations, the associated company is quite interested in having as many stockholders of American Telephone and Telegraph Company as possible located among its patrons. Probably if it could get all other things [fol. 6756] in equal benefit, it would be more interested in having as many stockholders as possible in its own company. By "other thing" I mean if it did not have the expense of handling its securities, if it did not have the expense of finding a market and did not have an expense of distribution and all the other expenses that go with it, and also if it did not have competition with all the other companies in getting money out of the market.

I don't think that the Illinois Bell would be better off in having widespread ownership of its stock if it turned out

that the licensee companies paid for the expense of issuing the securities and paid for the things which I have said were the other things that a company would have to take into account in determining whether it would be better off to have a concentrated ownership or to have a widespread ownership of its own stock, because I think that one well nationally known security as a source of money supply is much more certain. We can have conditions in different parts of the country that may affect local securities and that would affect the widespread securities only in those localities, and furthermore, it would be a difficult thing for that company to acquaint people with its own stock to the extent that they are acquainted throughout the whole nation with American Telephone and Telegraph Company stock, and in many localities the local companies would not find enough people with enough wealth to float its own securities in its own locality.

I think it is to the advantage of each of the associated companies to have stock of American Telephone and Telegraph Company owned by the public instead of their own securities by the public and by their stockholders, than their own securities, or their own stock.

Some companies do think it would be of advantage to them to have some of their own stock owned in the localities and in that case they have issued preferred stock and they offer that to their security holders.

I think it is of advantage to each of the associated companies to have stock of American Telephone and Telegraph Company outstanding as the stock of nation-wide tele- [fol. 6757] phone business than to have the individual stock of any company or every company outstanding throughout the nation, or even throughout its own locality, because American Telephone and Telegraph Company stock is a nationally known stock and people move from one section to another of the country and they all know about it; it is written up in the newspapers and in the periodicals; it is bought by their own employes, it is bought by other telephone company employes and those employes are interchangeable and they shift from company to company and they know the stock of the parent company. I think there is little distinction made by the public as to whether it is the stock of the individual company or the American Company that they own. They know that it is Bell Telephone stock and I think the ownership of the nation-wide stock is a safer and saner

stock to give to the public than the stock of a local company. For all reasons, as I see it, it seems to me better that the stock that they own or the stock that is owned by the public and by the employes, is the same stock and a nation-wide stock.

I consider that part of the service of American Telephone and Telegraph Company to each of the licensee companies is the financing of their needs in the manner in which it has in fact been done during the last nine years. American Telephone and Telegraph Company stock is considered for the reasons stated a high-grade stock. All Bell System securities are considered high-grade issues. I mean rated high by the agencies that rate them—Moody's, Standard Statistics. They are high-grade securities and the institutions that do rate them, rate them highly, such as Moody's and Standard Statistics, but their rating has no effect on what I consider them to be, but they are rated as high-grade securities.

[fol. 6758] CHARLES A. HEISS:

Direct examination continued.

By Mr. Blackman:

The source of the figures shown in column 1 of this sheet (Plaintiff's Exhibit A-154 for identification) is the books of the Company. The figures in column 2 were taken from page 914 of the deposition of the Treasurer, Mr. H. Blair-Smith. The figures in column 3 are a computation made by me, but the computation is based on a percentage given by Mr. Blair-Smith in his deposition. That is, the 6 per cent that I use in column 3 is the figure which Mr. Blair-Smith said should be allocated outside of the license contract work in his department. Column 4 is merely the remainder that I get by deducting column 3 from column 2. Column 5 is an allocation to the Long Lines, and this allocation was made by me. The left hand section of column 5 shows the percentages used, and those percentages are a composite ratio of plant, employees, expenses and total telephone revenues of the Long Lines in relation to the associate companies, including the Bell of Canada and the Long Lines. This is the same ratio that I have used on some of the preceding sheets. It was taken from Exhibit A-100, composited, I

believe, in A-103. In my opinion, that is the proper ratio to use to make an allocation of that part of the work that I am dealing with through the Long Lines, because the work of the Treasurer's Department affects all parts of the business, and every phase of the business, and I consider that a proper ratio, I consider the ratio used a proper one. Column 6 is merely the remainder that I get after I deduct the Long Lines portion from the total portion shown in 4. Next I allocate to the Chicago area, in column 7, and I use the same type of composite ratio, but include in the composite the factor of stations. Throughout all of these years, the ratio as shown in 7 for the allocation to the Chicago area is the same as the ratio shown in 5, modified only by the use of stations, in order to make the ratio as comprehensive as possible. In my opinion, the figures shown in the [fol. 6759] last column to the right on this sheet are a minimum allocation to the Chicago area of the Illinois Bell Telephone Company of its fair share of the expenses shown and dealt with on that sheet for each of the years in question.

"Mr. Blackman: I offer the sheet (Plaintiff's Exhibit A-154 for identification) in evidence.

"Mr. Haight: The same reservation."

These sheets, Plaintiff's Exhibit A-155 for identification, were prepared at my direction and under my supervision. They purport to show an allocation to the Chicago area of the fair proportion of the expenses of the Comptroller's Department incurred in rendering license contract services during the years 1923 to 1931, inclusive. I am dealing now with my own department.

I will take these figures up a little in detail, and discuss them very briefly. Beginning with the Bell System methods, which is the first line for expense: the division of Bell System methods is 66 employees, and its work is almost entirely concerned with the preparation of efficiency accounting methods and practices in respect of plant, revenues and disbursements. We have, for example, the job of putting out in the Bell System, eighteen million telephone bills a month. Now, to do that job efficiently, promptly and economically, it takes a very high type of method, and a continuous survey of methods, to keep the costs down to the very minimum. Now, that is just a little illustration of one type of method work that is done by this section.

Other types relate to plant and disbursement accounting, motor vehicle accounting, estimates, standard methods of preparing estimates, approval, and so on.

Another section deals with the preparation of the Federal Income Tax return annually. We may say, briefly, that the work of this department is practically confined to devising efficient and cheap methods for the associate companies and the Long Lines to use in connection with their accounting.

There is a very little work done by this department that is of benefit to the Western Electric Company, or the Electrical Research Products Company, and to the companies not included among the associate companies and the Long [fol. 6760] Lines. We do not devise methods for those companies to follow in their accounting, except indirectly. They may get slight benefit from such plans as the employees' stock plan, or some method that we devise for the associate companies may be of slight benefit to them, but no methods are prepared for those companies. These are essentially telephone methods, to fit the needs of telephone companies.

The chief traveling auditor makes an audit of each associate company and the Long Lines. He does not audit the Western Electric, nor the Electrical Research Products.

He makes an audit, in conjunction with the Western Electric, of the Bell Laboratories, but that audit is indirectly of benefit to the associate companies. But the Bell Laboratories is the only audit which he makes that is not a direct audit of the associate companies and the Long Lines, except that he makes an audit of the Bell Securities Company, too, and of the 195 Broadway Corporation, but that corporation, again, is a service organization, useful in rendering service to the associate companies and the Long Lines.

The 195 Broadway Company is a company which owns the building occupied by these departments which are serving the associate companies and the Long Lines.

Next, general books and records is the division of my department which contains the books and accounts of the American Company, and also has to do with advancing funds to the associate companies and the Long Lines. It keeps the records of employees' stock plan transactions of the American Company, certain summary records for the system, and, in addition to that, prepares such reports as we must file with public authorities. I think that covers, in general, the work of that section.

A considerable part of that work is of direct benefit to the associate companies. For instance, the relations with the companies in the advancement of funds to them from time to time is one direct relationship; the matters relating to the employees' stock plan is another. Then, as regards the keeping of the books, this department keeps the books and the records for the several departments, and for the Com- [fol. 6761] pany as a whole, and in that respect it goes back indirectly as a benefit to the associate companies and the Long Lines.

Considering the Chief Statistician, any large business that encounters the volume of business activity encountered in the telephone business must have a very well developed organization for analyzing the business, and for pointing out, bringing out of the various volumes of business and activities that take place, the essential facts for the executives and the officers, for administrative purposes.

Now, it is the function of our Chief Statistician in New York to develop the methods for use by the statisticians of the associate companies in analyzing the various phases of the business, what is happening in plant, what is happening in respect of revenue, what is happening in respect of expenses, in the growth of stations, and growth of business, and business conditions.

The Chief Statistician's organization in New York has as one of its large functions the development of methods of making analyses of that character. Then, the Chief Statistician's organization does, and has done in the past ten years, a large amount of work in the development of principles for applying mortality data to the depreciation problem, and in the development of proper depreciation rates. We develop the basic factors underlying our pension accruals, not only for our Company in New York, but the basic factors underlying the pension accruals of all of the associate companies and the Long Lines. This department also studies the question of fire insurance: is it cheaper to take out premium insurance, or can we self-insure our properties, and what are the best types of policies, what are the best methods, the most economical methods of providing protection for our properties throughout the System? This work is done for all of the associate companies and the Long Lines.

Now, none of this work is done for the benefit of the West-

Electric Company, nor the Electrical Research Products Corporation, nor the Bell Laboratories.

The next division is the Chief Accountant's. The Chief Accountant has charge of all accounting matters taken up [fol. 6762] with the Interstate Commerce Commission. For instance, our companies are required to follow a uniform system of accounts. In a business as large as ours, there are hundreds of problems of classification and accounting that arise each year. Now, these problems are referred to New York by the associate companies.

Many of these problems we can answer because of past rulings which we have obtained from the Interstate Commerce Commission, but on the other hand, there are numbers of them that we must take up with the Commission in order to provide the proper accounting for our various activities, and the Chief Accountant's work is to discuss these problems with the Commission, to obtain through one central source rulings for the companies, to take care of any matters involving changes in the system of accounts, changes in the annual report to the Commission, and so on.

The next division is Bell System Reports. Bell System Reports is a small division which combines for our executives the reports of the various associate companies of the System into a combined Bell System report. Those reports are furnished to our executives to give them a better understanding of the business, in order that they may, in turn, better serve the associate companies and the Long Lines; also to have a picture of the over-all volume and trend of the entire Bell System business.

My next is an undistributed item. The undistributed item is merely expense incurred in connection with rents and house service, and so on. That is expense that should be prorated over the six sections preceding, and also part of it should be prorated to my own section, administration. My own section consists of myself, two stenographers, and one office boy. The word "administration" sufficiently describes just what I do. I supervise all of the activities.

In column 3 I develop a percentage, 5 per cent. The 5 per cent is an estimate. I discussed very carefully and at length with my division heads, what work they could possibly do which was of benefit to others—which was in connection with work other than that which benefited the associate com- [fol. 6763] panies and the Long Lines, and, as I have al-

ready said, the only work that is done there is possibly an audit of the Bell Laboratories, of which 95 per cent, at least, is of benefit to the associate companies.

Then, t[illegible] work we do in connection with the development of thrift plans, to the extent that the Electrical Research Products Company, or the non-Bell portion of the Western Electric, or the Bell Laboratories, benefits from those thrift plans. A little of the benefit of my work percolates out to those companies, and possibly an adjustment of my expenses should be made for that reason.

Now, we make up the consolidated income tax return, we get the data, all prepared by the different companies, and so far as our work in New York is concerned, it is pretty largely a folding together of the companies. Now, we fold into that income tax return the data for the Electrical Research Products Corporation and the Western Electric Company and the subsidiaries of the Research Products Corporation, so that after I analyzed carefully my expenses from every angle, I came to the conclusion that over the period not more than about 2 per cent of the expenses of my department could, under any way of looking at this situation, be considered as incurred in connection with work which benefited others than the associate companies and the Long Lines. Now, in order that there might be no question, to take care of contingencies I took 5 per cent, and excluded 5 per cent.

Column 4 is merely the remainder after I have deducted column 3 from column 2. I develop another per cent in column 5. That is the same composite per cent about which I have testified, and is the percentage which I used in making the allocation to the Long Lines of its fair proportion of this expense. The work of my department is of a broad, general nature, and the accounting touches every phase of the business, and I have used a ratio which took that fact into consideration. The Long Lines Department has a large accounting organization of its own.

In column 7, I develop another per cent. That is the same per cent which I developed in the sheets that I have [fol. 6764] testified about previously, except that it includes stations, as testified to in the other instances, in instances in which it was used to make an allocation to the Chicago area. I have proceeded in each of the years in question in the same manner.

In my opinion, the amounts shown in the last column to the right of these three sheets which have been marked A-155 for identification, show a minimum amount that should be allocated to the Chicago area of the Illinois Bell Telephone Company as its fair share of the expenses dealt with on the sheets.

"Mr. Blackman: I offer the sheets (Plaintiff's Exhibit A-150 for identification) in evidence.

"Mr. Haight: The same reservation, if we may have it."

This paper, Plaintiff's Exhibit A-156 for identification, was prepared at my direction and under my supervision. It purports to show an allocation to the Chicago area of the fair proportion of the expenses incurred by the Secretary's department in rendering license contract services for the years 1923 to 1931, inclusive. The figures in column 1 are taken from the books, directly and without change. In column 2 the figures are also taken from the books directly and without change. They represent the total expenses of the Secretary's department.

The figures in column 3 are estimates made by me, in co-operation with the Secretary, considering the general character of his work, the amount of work that he might possibly do that was of benefit to other than the Long Lines and the associate companies. Taking all those factors into consideration, and taking also into consideration that the Secretary holds a general administrative position, we considered that an exclusion of 5 per cent was a fair and proper exclusion to make from his total expenses.

My knowledge of the work of the Secretary's department comes from the fact that I have almost daily contact with the Secretary. In the discussion of matters of joint interest to his department and mine, I receive from him, monthly, his approved bills, classified in the manner in which I have asked him to classify them. I summarize them and prepare [fol. 6765] for him a monthly administrative report, and, in that way, obtain from him a rather intimate knowledge of the work which he does.

This 5 per cent that I have taken off here in column 3 represents such possible work as he might do which was of benefit to Electrical Research Products Corporation, or which was of benefit to the Western Electric; but keeping in mind that the larger part of the work done which is of benefit to the Western Electric is, in turn, of benefit to the

associate companies. This last factor that I have mentioned is what we might call the non-Bell business of the Western Electric, which is about 4 or 5 per cent. Dr. Jewett testified it was about 4 or 5 per cent. Then there might be some strictly corporate matters of the American Company that the Secretary might consider; and taking all of these items into consideration, we considered that 5 per cent was a fair and proper exclusion. There is one other factor there. The Secretary acts as Secretary for the Bell Securities Company, and, in that respect, a very small part of his time, probably a half a day a month, has been included in this estimate.

In column 4, I make the deduction for the amount developed in column 3 and the amount shown in that column is the remainder after that deduction is made. The amount in column 4 for any year is divided into two parts. The (A) portion is the amount which the Secretary has specifically indicated as allocable directly to the Long Lines and the associate companies. For example, of the amount of $4,372 in the year 1923, I was told that $1,093 should be allocated to the Long Lines. That represents his time in connection with keeping the minutes of the Long Lines board and such other direct services as he renders in connection with the keeping of the minutes of our state companies, which is a minor task, since they have very infrequent meetings. The Secretary renders services direct to the associate companies.

One character of that work is that he prepares and furnishes a list of the officers and administrative personnel of each company, and combines it with that of other companies, and distributes such a list to all of the companies for their [fol. 6766] information. That is one type. The other type of service which he renders directly for the associate companies is that in case they have a problem requiring the formulation of an executive resolution, or a vote, our Secretary, having had many years of experience in that work, is very familiar with it and is frequently called upon by the secretaries of the local companies for advice as to procedure and methods of setting up votes for the consideration of the Board of Directors. But the greater part of this expense that I deal with here has only an indirect benefit to the associate companies. It deals largely with the work of the American Company, which in turn is largely incurr

for the benefit of the associate companies and the Long Lines.

"Judge Wilkerson: The amount involved here is not very large.

"Mr. Blackman: It is very small.

"Judge Wilkerson: Is there anything in the license contract which entitles an associate company to require an officer of the American Telephone and Telegraph Company to do anything?

"Mr. Blackman: I think so.

"Judge Wilkerson: Or are the services rendered under some general clause of the contract?

"Mr. Blackman: Well, they are rendered under the general clauses of the contract.

"Judge Wilkerson: That is, there isn't anything specifically touching the officers of the parent telephone company?

"Mr. Blackman: Nothing specifically.

"Judge Wilkerson: That gives to the associate company the right to require those officers to do anything for the associate companies?

"Mr. Blackman: I don't think there is anything specifically requiring the Secretary to do anything for the associate companies.

"Judge Wilkerson: This is offered under the general welfare clause?

"Mr. Blackman: Yes, sir, under the general welfare clause, and under the direction of the Supreme Court to [fol. 6767] show the fair proportion of the expenses of the American Company that should be allocated to the Chicago area. Of course, we could not have the operation of this contract and the operation of these departments if we did not have a secretary's office.

"Judge Wilkerson: Yet, I understand."

I have developed some percentages for allocation on this sheet. Wherever percentages appear in the left hand column of section 5, the percentage is a composite ratio of plant, employees, expenses and total telephone revenues, and where percentages appear in column 7, they comprise the same composites, plus stations, and I used the composite ratio in making all the allocations, again because the Secretary's work is of a general over-all character affecting all phases of the business.

In my opinion, the figures shown in the right hand column of this sheet show a minimum amount to allocate to the Chicago area of the Illinois Bell Telephone Company as its fair share of the expenses of the Secretary's Department of the American Telephone and Telegraph Company.

"Mr. Blackman: I offer this sheet (Plaintiff's Exhibit A-156 for identification) in evidence.

"Judge Wilkerson: The same reservation?

"Mr. Haight: Yes."

This sheet, Plaintiff's Exhibit A-157 for identification, was prepared at my direction and under my supervision. This purports to show an allocation to the Chicago area of the fair proportion of the expenses of sundry items, including administration incurred in rendering license contract services during the years 1923 to 1931, inclusive. This sheet covers the administration section of the American Company, including various sundry expenses.

The figures in column 1 come from our books. The figures in column 2 are taken from our books also, directly and without change. The red figures are a credit made to the expenses for the years 1923, 1924 and 1925, in respect of restaurant activities. In those years the American Company conducted its own restaurant for employees, and these red figures represent the profits earned by that restaurant, [fol. 6768] and, inasmuch as we had not charged up the restaurant with any rent specifically, we credited the profits back against expenses. The figures that I show in those years are the figures of expense for the Administration Department after the deduction of the restaurant profits.

I will state in a very general way, and briefly, what the character of the work consists of: under the head of administration, we have the expenses of the President's office, his secretary and staff, and in addition we show here the expenses of the office of Vice President Wilson, who reports to the President.

In later years, say for example, in 1926, 1927, 1928 and 1929, Vice President Guernsey was also treated as a part of the Administration section, and his expenses are shown.

Now, in addition to the usual and ordinary expenses, such as salary, rent and house service, periodicals, books, and various items, there are included in these expenses such items as directors' fees, audits, expenses of an annual audit, the expenses of any contributions that might have been

made in the interest of the business, and so on. That, generally, covers the character of these expenses.

I am familiar with the work of the Administrative department. I have fairly close contact with the President's office; there are many matters that my department has taken up with the President. In addition, I receive the approved expense vouchers, monthly, and prepare his administrative report, and in that way have a reasonable familiarity with all the general character of the work of the President's office.

"Judge Wilkerson: Just why do you charge to the Illinois Bell a part of the salary of the President of the American Telephone and Telegraph Company?

"A. Because the American Telephone and Telegraph Company——

"Judge Wilkerson: The American Telephone and Telegraph Company, as I understand the set-up, owns a controlling interest in the stock of the Chicago Bell Telephone?

"The Witness: Yes, sir.

"Judge Wilkerson: And votes the stock?

"The Witness: Yes, sir.

[fol. 6769] "Judge Wilkerson: And the Bell Telephone has its own officers?

"The Witness: Yes, sir.

"Judge Wilkerson: Now, on the theory of this case we heard advanced here before, besides the services rendered under this contract, all the American Telephone and Telegraph had to do was to vote the stock of the Illinois Bell. Now, why should you charge a part of the salary of the President of the American Telephone and Telegraph Company to the Illinois Bell?

"The Witness: Well, your Honor, let's look at the functions of the American Company. First we have the Long Lines Department. Now, the expenses of the Long Lines Department are entirely excluded from these figures. Now, what is left of the work of the American Company is very largely the work done in serving the associate companies under the license contract, and generally.

"Take, for instance, the work of Dr. Jewett, he has three or four hundred employes; the work of Mr. Gherardi's office, about five or six hundred employes.

"Judge Wilkerson: I understand that; but I wanted to know in particular in regard to the President.

"The Witness: All right. Now, the President supervises all of this work, and if the work of these various departments is chargeable against the associate companies, then the expenses of the executive who has general supervision and directs generally all of those activities should be likewise apportioned.

"Judge Wilkerson: You have made this set-up on a theory which disregards, really, corporate form, and treats the business as—looks at it as an entire organization?

"The Witness: Substantially that. That is, that the expenses of the American Company are expenses in addition to those of the associate companies.

"Judge Wilkerson: That is, you have made this on the theory which the defense is contending in this case, namely, that the corporate form is to be eliminated, and that we are [fol. 6770] to look at it as it was one organization. Now, accepting that as the argument, you have made that on this theory; do I understand it?

"Mr. Blackman: I think that approaches it, sir. What we have done is this: we have tried to give what the Supreme Court said we should give, and that is the fair share of all our expenses connected with this license contract which we should allocate to the Chicago area.

"Judge Wilkerson: Now, on the other hand, as an offset, may there be charged against this anything that the Illinois Bell does for the American Telephone and Telegraph Company, on that theory?

"Mr. Blackman: Why, on that theory it might be an offset, perhaps, if the Illinois Bell does——

"Judge Wilkerson: We will just forget for a minute that we have a series of corporations here, and look at this as one organization.

"If you allocate a portion of the expenditures of the American Telephone and Telegraph Company to the Illinois Bell, and it is really benefited by those—by this service—because, stripping this thing of its corporate form, and looking at it as one organization, this is really for the benefit of that department.

"Now, if the Illinois Bell, on the other hand, spends out its money for something which went to the supervision of that portion of the plant of the Illinois Bell which was used, for instance, in interstate commerce, that would be a legitimate set-off, on that theory?

"Mr. Blackman: No, sir, not these things. It might be

charge against the Long Lines. It would probably be allocated properly to the Long Lines, but not against this.

"Judge Wilkerson: Not against the license contract?

"Mr. Blackman: Oh, no, sir. Today our theory is this, sir; that is, we have figured this license contract as something against which we did not have to prorate our expenses. For years we went along charging fixed percentage rates for the license contract service, and we did not undertake to show whether we made a profit or a loss. [fol. 6771] Our books do not allocate at all, and in a number of cases before the Supreme Court that practice was apparently upheld, on the showing that we were rendering a valuable service, and that the associate companies could not get that service for anything like the amount that we charged them; that they would have to pay a great deal more than that if they did it themselves.

"Now, in this case the Supreme Court has said that that was not enough, the showing that we rendered them a valuable service, and that it would cost them more to do it themselves than we charge them, but the Supreme Court wanted to know what it cost us to do the service.

"Judge Wilkerson: Just the cost to the American Telephone and Telegraph Company?

"Mr. Blackman: The cost to the American Telephone and Telegraph Company.

"Judge Wilkerson: That is in the opinion.

"Mr. Blackburn: Now, the opinion is not specific in what use is to be made of that cost. We assume that the Supreme Court wants to make sure that it is a fairly reasonable cost.

"Judge Wilkerson: If you show the cost is substantially what you charge for it, I should say that a conclusion might be drawn from that that a contract, which was not an arms-length contract, but a contract made between the company with another company——

"Mr. Blackman: The controlling company.

"Judge Wilkerson (continuing):—that owned a controlling interest, that it was not unreasonable. That the dominating company had not overreached the other, if you show it cost substantially what the contract covers.

"Mr. Blackman: That's it.

"Judge Wilkerson: All right.

"Mr. Blackman: And in that little chart that I put in evidence at the beginning of this branch of proof, that di-

vides up the assets of the Bell System into little grooved [fol. 6772] squares. You will see that there is practically nothing but the associate companies and the Long Lines.

"Of course, there is the Western Electric, which we colored in light blue because while it was not an associate company, itself, its activities were directed 95 per cent, or thereabouts, to the service of the associate companies, and the proof that has been introduced tends to show that it sells its goods to them at a price that is not only reasonable, but lower than it would have the right to charge for an ordinary manufacturing profit.

"Now, Mr. Heiss has allocated these things on the basis, as I understand it, that the Administrative Department of the American Telephone and Telegraph Company administers all the other departments, which, of course it does.

"Now, the energies of those other departments are directed, about 95 per cent, to the service of the associate companies under this license contract.

"Judge Wilkerson: Well, I think I understand the purpose of the testimony. I won't say what the effect of it is."

Referring to column 3, Exhibit A-157 for identification, I made certain deductions. My first step was to go through the expenses of the Administration Department, or the several departments included under the head of Administration, and eliminate certain special payments or items which I felt should be excluded. For instance, in the year 1923, I excluded two items totaling $93,000. In the year 1924, I excluded $18,000, and so on throughout the years.

In the year 1923, the year of the Japanese Earthquake, all of the companies, individuals in this Company, were asked to contribute to the relief fund for that catastrophe. The American Company, for itself and its associate companies, contributed $75,000. That amount is excluded. I have excluded the entire amount. Another item in that year was a payment of $18,000 made to a former President of one of our associate companies. I excluded that. It was a payment made to enable the Company to retire its President and put in his place a younger man, because at that time the conditions in that Company required a young and active man to administer the work, it being just [fol. 6773] following the war, and the operating conditions required very careful attention. So, in order that the as-

sociate company might be relieved of that expense, the American Company assumed it. That item I have excluded. Those two items total $93,000. I have eliminated from each of the years any items of that kind. Take, for instance, the year 1930; I have eliminated $250,000, roughly.

Anything there was any question about, that was not an ordinary operating expense, I eliminated. In addition to these definite amounts, I eliminated 5 per cent of the remainder. In a discussion with the President, it was his judgment that we should eliminate for his department the average of the amounts eliminated for all of the other departments. Now, the average of the amounts eliminated for all of the other departments was about 3 per cent, so that there would be no question, to take care of any contingencies that I had overlooked.

The percentages in column 5 and in column 7 are the same percentages I used in connection with other departments. The work of the Administration Section being, of course, general in character, and touching all phases of the business, I used a composite ratio which took into consideration all phases of the business.

In the allocation to the Chicago area, I included stations which I did not include in the allocation for the Long Lines, because the Long Lines had no stations.

In my opinion, the amounts shown in the columns at the extreme right of this sheet show a minimum amount to be allocated to the Chicago area of the Illinois Bell Telephone Company for its fair share of the expense of the Administration Department of the American Telephone and Telegraph Company.

"Mr. Blackman: I offer the sheet (Plaintiff's Exhibit A-157 for identification) in evidence."

This sheet, Plaintiff's Exhibit A-158 for identification, was prepared at my direction and under my supervision.

The sheet purports to show an allocation to the Chicago [fol. 6774] area of a fair proportion of the expenses of the general service bureau.

The general service bureau is an organization which had, during the years 1923 to 1931, employees ranging from 113 to 203. Its function is to handle the service work of the Company, more or less common to all the depart-

ments of the Company, which work can be handled most advantageously by a central organization.

For instance, this bureau takes care of the purchasing and handling of supplies, distribution of supplies, or any mimeograph work, blueprint work, off-set process work, printing, and so on. In addition, it maintains a list of available material, supplies, clerks, stenographers, and office boys, as needed, it maintains a training school for office boys, and any work of a general character; it receives the mail, and distributes it to the different departments, and collects the outgoing mail and sees that it is cared for.

The figures in columns 1 and 2 were taken from the books of the Company, directly and without change. Column 3 is a computation made by me, and the 5 per cent used as the basis for the deduction is the same 5 per cent which I discussed in the case of the other departments here. It represents the composite of the eliminations made by the various departments to remove from their expenses costs incurred for work other than that which benefits the associate companies and the Long Lines. That is, because their work was less than 5 per cent, and this department was serving all of them, I have taken 5 per cent as a liberal allowance here for this department. The overall percentages were about between 3 and 4, and so there would be no question, I took 5.

This department does not work except serving the other general departments. For instance, if the Operation and Engineering Department did this work itself, its expenses would be increased to that extent, and each department doing the work for itself would considerably increase the total cost of doing the general service work. It does not serve Long Lines. Its work is done directly for the departments furnishing license contract service. This or- [fol. 6775] ganization does not serve the Western Electric, except as it serves the Western Electric through the other departments of the American Company. It does nothing for E. B. P. I. If it does anything for the Long Lines Department, it bills that department for the cost of the work.

I have made an allocation to Long Lines of its share of this expense on the basis of the composite ratio of plant, employees, expenses and total telephone revenues. Again, the work of this department is of a general character, affecting all the departments of the Company, and the de-

partments, in turn, deal with all phases of the business. That is, because the other departments, D. & R. and O. & E., are doing work for the Long Lines as well as the associate companies, I have taken a share of the expense of this department and allocated it to Long Lines on the basis of the percentage of the other departments. The percentages I use in column 5 are the same percentages we have dealt with in the other exhibits. And the same is true as regards column 7, allocations to the Chicago area.

In my opinion, the figures that appear in the last column to the right of this sheet are the minimum figures to allocate to the Chicago area of the Illinois Bell Company for its fair share of the expenses of the service bureau of the American Telephone and Telegraph Company.

"Mr. Blackman: I offer this sheet (Plaintiff's Exhibit A-158 for identification) in evidence.

"Mr. Haight: Same reservation as heretofore."

This sheet, Plaintiff's Exhibit A-159 for identification, was prepared at my direction and under my supervision. It purports to show an allocation to the Chicago area of the fair proportion of the expense of the Department of Operation-C, that is, Department of General Operation. No, let us change that a minute; the expense of the Department of Operation-C, commonly referred to as "Operation (General)", in rendering license contract services for the years 1923 to 1931, inclusive.

The figures in columns 1 and 2 were taken from the books of the Company, and in this instance they were given [fol. 6776] to me by the head of the department. As a matter of fact, all of these figures were given to me by the head of that department, except the employee figures in the first column, which I took from the books.

Those allocations in columns 5 and 7 were also made by the department, and given to me. So that, really, I am not responsible for any of the figures on this sheet, except to make up and do the clerical work, or have the clerical work done, in preparing the sheet, and general discussion of the whole set-up from time to time.

Mr. Blackman: "I have asked that this sheet be marked for identification and I won't offer it at this time, as I [illegible] up the matter with counsel for the defendants as to [illegible] we will deal with this."

Testimony of CHARLES P. COOPER.

May 18, 1932.

Mr. Blackman: I just want to state to the Court that we have made a stipulation with regard to the testimony of Mr. Cooper, that he would testify if called, as follows—and I will just hand this statement to the stenographers—in support of that sheet which was put in at the last of yesterday's hearing.

Judge Wilkerson: Very well.

Mr. Blackman: Cooper is one of the Vice Presidents.

Judge Wilkerson: It may go into the record.

(Pursuant to said stipulation, the testimony of Charles P. Cooper is as follows:)

"I reside in the City of New York and have my business office at 195 Broadway in that city. I am Vice President of the American Telephone and Telegraph Company and have held this position since August, 1926. Prior to holding this position I had the following training and experience:

"In 1907 I was graduated from Ohio State University and in 1908 entered the employ of the New York and New [fol. 6777] Jersey Telephone Company as Plant Engineer at Newark, N. J. In 1912 I was appointed General Plant Engineer of the New York Telephone Company and in 1916 Division Plant Superintendent of that company. In 1918 I went to the Chesapeake and Potomac Telephone Company and was in charge at Washington, D. C., of all matters pertaining to plant. In 1919 I became General Superintendent of Plant of that company at Baltimore. In 1920 I was appointed General Superintendent of the Cleveland Telephone Company at Cleveland, Ohio, and later in that year General Manager. In 1921 I was appointed Vice President and General Manager of the Ohio Bell Telephone Company and in 1923, President of that company, which position I held until 1926 when I was appointed to my present position.

"My duties as Vice President of the American Telephone and Telegraph Company consist of the following:

"Responsibility for the Department of Operation-C of which I am the head and general supervision of the Department of Finance, the Department of Accounts and of the General Service Bureau. The expenses of my office are

confined to the salaries of myself, and of Assistant Vice President Bickelhaupt, together with the salaries and expenses of the employes of the Department of Operation-C together with the appropriate loadings for rent and other incidental expenses.

"No part of the expenses of the General Service Bureau, of the Department of Accounts in charge of the Comptroller, or of the Department of Finance in charge of the Treasurer, is included in the expenses of my office.

"Attached hereto marked Exhibit "A" and made a part hereof is the organization chart of the Department of Operation-C, dated February 1, 1931. This chart shows a total of 35 persons constituting the department. In the years prior to 1931 the numbers were fewer, except perhaps in 1929 and 1930. The expenses of said Department of Operation-C for the years 1923 to 1931, both inclusive, were as follows: 1923, $241,740; 1924, $241,069; 1925, $243,589; 1926, $271,875; 1927, $265,671; 1928, $286,718; 1929, $317,727; 1930, $341,080; 1931, $327,647.

[fol. 6778] "These figures include the salaries of Mr. Bickelhaupt and myself.

"I have examined into these expenses and have determined what part thereof are in my opinion fairly allocable to the Chicago area of the Illinois Bell Telephone Company. Those amounts are as follows: 1923, $12,525; 1924, $11,952; 1925, $11,659; 1926, $13,059; 1927, $12,393; 1928, $13,640; 1929, $14,558; 1930, $14,441; 1931, $12,862.

"The following is a general description of the work under my supervision and of the manner in which I reached the allocation set forth in the table immediately above:

"The General Service Bureau, in charge of Assistant Vice President J. L. R. Van Meter, performs for the departments of the company those things more or less common to all departments which can more advantageously be handled by a central organization than by the several departments individually and independently namely,

"1. The purchase and distribution of office supplies, stationery, furniture, printing and office appliances.

"2. The production or purchase of reproductions by the photostat, mimeograph, zincograph and kindred processes.

"3. General drafting work.

"4. The receipt and distribution of incoming and outgoing mail, express and freight matter.

"5. The employment, instructions and general supervision of all messenger forces.

"6. Finding suitable candidates for positions as clerks, stenographers and typists, and such other grades of employes as may be requested by department heads, and

"7. Miscellaneous general services.

"The books of the Accounting Department record the expenses of the General Service Bureau.

"The work of the Comptroller's office and that of the Treasurer's has been described.

"The Department of Operation-C performs the following classes of work:

"1. Advice and assistance to the associated companies [fol. 6779] on matters of business and commercial policy, including revenue requirements, policies to be followed in regard to new business projects, new types of telephone service and wide usefulness of existing services.

"2. Advice in matters pertaining to negotiations of purchases and sales of operating properties.

"3. Supervision and recommendations with reference to contract relations with manufacturing companies including the Western Electric Company, also relations between the associated companies and the Long Lines Department, and broadly with matters that arise in connection with the general administration of the License Contract.

"4. Advice and assistance to the associated companies in connection with general agreements with railroads, electric light and power companies, oil and pipe line and telegraph companies, governmental departments, and similar general contracts and arrangements.

"5. Supervision of agreements and arrangements arising out of the ownership of patents by the American Telephone and Telegraph Company.

"6. Maintenance of official point of contact between Bell System and the Federal Radio Commission and co-ordination of Bell System relations with all government agencies as regards use of radio.

"Department of Operation-C is under the immediate direction of Assistant Vice President Mr. C. O. Bickelhaupt, who has reporting to him a secretary and five department heads in charge of different phases of the work. Considering these departmental heads in the order in which they appear on the chart:

"Assistant Vice President, Mr. E. V. Cox, has the following responsibilities:

"1. Supervision over the development and administration of the Standard Supply Contract which the Western Electric Company has made with the American Telephone and Telegraph Company, and the associated companies. All changes therein and interpretations thereof are subject to his review. He makes studies comparing the contract [fol. 6780] prices with the prices obtainable from other suppliers and determines the amount of savings through the contract. When such information is required by the associated companies for public hearings he furnishes the facts.

"2. Matters affecting the License Agreement and extensions of the Agreement by sub-licenses.

"3. Obtaining and compiling information as to the territory and affiliations of non-Bell Telephone Companies and reports thereon to the associated companies.

"Staff Engineer, Mr. Elam Miller, has the following responsibilities:

"1. Contracts and licenses for manufacture, sale and use under patents owned or controlled by the American Telephone and Telegraph Company.

"2. Consultation with and advice to associated companies on request for wire facilities for various special purposes other than telephone.

"3. Consideration of new services which might be rendered by the Bell System.

"4. Consideration of proposals and suggestions of interest to the business from people outside of the Bell System.

"5. Consultation and advice to other departments and associated companies on radio, such as broadcasting, ship-to-shore, harbor craft, aircraft and police systems.

"Special Representative, Mr. B. A. Kaiser, has the following responsibilities:

"1. Development and administration of the Standard Operating Agreement with railroads; and the preparation, negotiation and administration of specific contracts thereunder.

"2. Preparation, negotiation and administration of contracts with railroads for repeaters and loading coils.

"3. Negotiation, administration and assistance in the preparation of special contracts with the War Department, Navy Department, Coast Guard and Forest Service of the

Federal Government and, in general, maintaining points of contact with Federal departments requiring service.

[fol. 6781] "4. Preparation, negotiation and administration of contracts with oil, natural gas, and pipe line companies.

"Special Representative, Mr. C. F. Craig, has the following responsibilities:

"1. Development and administration of Bell System contracts with telegraph, power and light companies.

"2. Development of new types of telephone service and wider usefulness of existing services and facilities, as for example, teletype service.

"Special Radio Representative, Mr. L. E. Whittemore, who heads a new department established January, 1931, has the following responsibilities:

"1. Maintains official point of contact between the Federal Radio Commission and the Bell System.

"2. Co-ordinates Bell System relations with all Government agencies as regards use of radio.

"3. Prepares and handles all applications for radio permits.

"4. Represents the Bell System at conferences and conventions of communication companies with radio interests.

"Under my orders and supervision the work done by the Department of Operation-C has been reviewed for the years 1923 to 1931, inclusive, and the expenses of these years apportioned to two classes, namely, 'Expenses on account of License Services' and 'Other Expenses (including general supervision)'.

"In making this review the work done by each department head as described above was considered separately and all of the work was found assignable to 'License Services' except that portion in charge of Mr. Miller, Staff Engineer, which related to contracts and licenses for the manufacture, sale or use outside the Bell System under patents owned or controlled by the American Telephone & Telegraph Company. The costs of this latter work were assigned to 'Other Expenses'.

"The expenses of Assistant Vice President, Mr. C. O. Bickelhaupt, and his secretary have been assigned to 'License Services' and 'Other Expenses' in proportion to the [fol. 6782] total assignments to these classes for his division heads. Expense representing time paid for but not assigned has been allocated to 'Other Expenses'.

"My own expenses and those of my secretary I have assigned 75 per cent to 'License Services' and 25 per cent to 'Other Expenses,' the latter including certain amounts covering supervision of general activities of the company which are properly allocable as costs of rendering License Contract Service.

"Summarizing these apportionments gives the following results:

"Apportioned to License Services:

1923	$213,551, or 88 per cent.
1924	209,788, or 87 per cent.
1925	211,565, or 87 per cent.
1926	240,549, or 88 per cent.
1927	233,029, or 88 per cent.
1928	254,250, or 89 per cent.
1929	268,793, or 85 per cent.
1930	277,792, or 81 per cent.
1931	273,631, or 83 per cent.

"Apportioned to Other Expenses (including general supervision):

1923	$28,189, or 12 per cent.
1924	31,281, or 13 per cent.
1925	32,024, or 13 per cent.
1926	31,326, or 12 per cent.
1927	32,642, or 12 per cent.
1928	32,468, or 11 per cent.
1929	48,934, or 15 per cent.
1930	63,288, or 19 per cent.
1931	54,016, or 17 per cent.

"I consider all of the above fair and reasonable.

"Having determined the amount of expenses assignable to 'License Services' for the respective years, I then had these expenses apportioned between those for the benefit of the Long Lines Department and those for the benefit of [fol. 6783] the associated companies, including the Bell Telephone Company of Canada.

"Such apportionment cannot be exact because practically all the work of the Department directly or indirectly affects both the Long Lines Department and the associated companies. However, the ratio which the plant investment of the Long Lines Department bore to the total plant invest-

ment of the Associated Companies, including the Long Lines Department and the Bell Telephone Company of Canada, will furnish a basis for such apportionment. The Long Lines portion so determined was as follows: 1923, 6.0 per cent; 1924, 6.1 per cent; 1925, 5.9 per cent; 1926, 5.7 per cent; 1927, 6.2 per cent; 1928, 6.8 per cent; 1929, 7.6 per cent; 1930, 9.0 per cent; 1931, 9.5 per cent.

"The total operating revenues, Accounts 501 to 526, inclusive, of the Long Lines Department compared with the same total revenues for the associated companies, including the Long Lines Department and the Bell Telephone Company of Canada, shows the Long Lines portion of the total percentages to be the following: 1923, 7.7 per cent; 1924, 7.1 per cent; 1925, 7.2 per cent; 1926, 7.1 per cent; 1927, 7.2 per cent; 1928, 8.1 per cent; 1929, 8.7 per cent; 1930, 8.6 per cent; 1931, 8.4 per cent.

"Both the plant investment and the revenue relations reflect activities of Department of Operation-C and my supervision thereof and in my opinion a composite ratio should be made of the two relations by taking their arithmetical mean, the result being as follows: 1923, 6.9 per cent; 1924, 6.6 per cent; 1925, 6.6 per cent; 1926, 6.4 per cent; 1927, 6.7 per cent; 1928, 7.5 per cent; 1929, 8.2 per cent; 1930, 8.8 per cent; 1931, 9.0 per cent.

"In my opinion the composite ratio just stated is the most appropriate for apportioning to the Long Lines Department the expenses of Department of Operation-C which have been assigned to the 'License Services' for the years 1923 to 1930, inclusive. For the year 1931 the composite ratio is, in my opinion, also appropriate for all the expenses except those incurred by Mr. Whittemore's depart-
[fol. 6784] ment which was established in that year.

"The expenses of that department, including a pro rata portion of Mr. Bickelhaupt's administration, should, in my opinion, be apportioned two-thirds to the Long Lines Department and one-third to the associated companies, including the Bell Telephone Company of Canada. If various other possible bases for apportionment such as expenses, stations, employees, were taken there would be little difference in the result.

"Using the composite ratios already stated applying the special correction for the year 1931, gives the following amounts assignable to the Long Lines Department: 1923, $14,735; 1924, $13,846; 1925, $13,963; 1926, $15,895; 1927,

$15,613; 1928, $19,069; 1929, $22,041; 1930, $24,446; 1931, $39,433.

"The balance of the expenses in each year were assigned to the associated companies, including the Bell Telephone Company of Canada, with the following results: 1923, $198,816; 1924, $195,942; 1925, $197,602; 1926, $225,154; 1927, $217,416; 1928, $235,181; 1929, $246,752; 1930, $253,346; 1931, $234,198.

"The services of the Department of Operation-C are applicable to the Chicago area as defined in this case. A basis for an allocation to that area is, in my opinion, the ratio which the plant investment for the Chicago area bears to the total plant investment for the associated companies, including the Bell Telephone Company of Canada. This is as follows: 1923, 5.6 per cent; 1924, 5.4 per cent; 1925, 5.2 per cent; 1926, 5.2 per cent; 1927, 5.2 per cent; 1928, 5.3 per cent; 1929, 5.3 per cent; 1930, 5.1 per cent; 1931, 5.1 per cent.

"The percentage relation which the total operating revenue, Accounts 501 to 526, inclusive, of the Chicago area bore to the same total revenue for the associated companies, including the Bell Telephone Company of Canada, was as follows: 1923, 7.0 per cent; 1924, 6.8 per cent; 1925, 6.5 per cent: 1926, 6.3 per cent; 1927, 6.2 per cent; 1928, 6.2 per cent; 1929, 6.5 per cent; 1930, 6.3 per cent; 1931, 6.2 per cent.

"Since both the plant investment and the revenue rela-
[fol. 6785] tions reflect activities of the Department of Operation-C, a composite ratio of the two relations is in my opinion the best measure. The arithmetical mean of the two percentages is as follows: 1923, 6.3 per cent; 1924, 6.1 per cent; 1925, 5.9 per cent; 1926, 5.8 per cent; 1927, 5.7 per cent; 1928, 5.8 per cent; 1929, 5.9 per cent; 1930, 5.7 per cent; 1931, 5.7 per cent.

"However, before making this apportionment, I deducted from the total so assigned for the year 1931 the portion of Mr. Whittemore's expenses and administration thereon included therein. The amount thus deducted is $8,559.

"Applying the composite ratios above stated to the totals found applicable to the associated companies, including the Bell Telephone Company of Canada less the adjustment for radio, gives the following as the amounts of expense

of Department of Operation-C applicable to the Chicago area: 1923, $12,525; 1924, $11,952; 1925, $11,659; 1926, $13,059; 1927, $12,393; 1928, $13,640; 1929, $14,558; 1930, $14,441; 1931, $12,862.

"Regarding the allocation to the Long Lines of a portion of the expenses of the General Service Bureau, the cost of the activities of the several company departments served by that Bureau pertain (in so far as Long Lines are concerned) to one or more of the following factors:

"Plant Investment; Employees; Expenses; Revenues.

"An allocation of the General Service Bureau costs to the Long Lines should therefore be made on the basis of a composite of these four factors; namely, the ratio that the Long Lines composite of these items bears to the total of the same items for all associated companies, including the Bell Telephone Company of Canada and the Long Lines. An allocation of the balance of the General Service Bureau costs to the Chicago area should similarly be made on the basis of the composite of the above factors plus stations (which is a comparable factor) in the ratio that the Chicago area composite ratio bears to the total composite ratio of all [fol. 6786] associated companies and the Bell Telephone Company of Canada."

Mr. Blackman: Now, as a part of our stipulation, it is agreed that I should state on the record that the ratio figures in so far as they come from revenue, plant and the other matters dealt with in the Crunden exhibits, come from those same exhibits, and that the defendants make the same objection to this sheet that they have made to the others, on the ground that the figures underlying the ratios have not yet been proven in evidence.

CHARLES A. HEISS, called as a witness on behalf of the plaintiff, having been previously duly sworn, resumed the stand and further testified as follows:

Direct examination (continued).

By Mr. Blackman:

May 18, 1932.

This sheet is an allocation to the Chicago area of the fair proportion of the expenses of the Legal Department for the years 1923 to 1931, incurred in rendering license contract services.

(Sheet marked Plaintiff's Exhibit A-160 for identification.)

The sheet was prepared at my direction and under my supervision. The figures appearing in columns 1 and 2 were taken directly and without change from the books of the company. The figures appearing in column 3 were given to me by Vice President Bracelen, who is in charge of the department. I had no responsibility for developing these figures. He developed them and gave them to me. From that point on, I proceed in this exhibit in precisely the same manner that I have proceeded in the five or six exhibits that I described yesterday. The columns are numbered in the same way, and each column stands for the same general thing. The only ratio used in making allocations on this exhibit is that of total telephone revenues, as stated [fol. 6787] in the footnote appearing on the exhibit. Mr. Bracelen selected that ratio as the basis.

I think that ratio is a fair and proper ratio to use for allocating expenses. Assuming the correctness of the deductions shown in column 3, in my opinion the figures shown in the last column to the right of this sheet allocate to the Chicago area of the Illinois Bell Telephone a minimum amount as its fair share of the cost of the Legal Department of the American Telephone and Telegraph Company as related to the business of that Company.

"Mr. Blackman: If your Honor please, we have an understanding with counsel for the defendants that Mr. Bracelen need not be called to substantiate these figures, provided that certain facts connected with them be put in evidence. We have examined into it among ourselves, out of court. One of the facts that the defendants wish to establish is that these figures contain payments for patents. Part of the expense of the Legal Department is outright payments to outsiders for patents."

I can tell whether payments for patents are included in the figures that appear in column 2, and carried forward to column 4.

Mr. Goldstein requested the cost of patents purchased from persons outside of the business. Now, the figures which I have here include also the patents which the American Company purchased from the Western Electric Company, and the small amounts paid from year to year as

honorariums to men in the business who developed patents. The second group is not large, the amount is not large, but we are giving him more than he asked for.

"Mr. Goldstein: The total figure will be satisfactory. I mean, I thought at first it only included the outside, but if you give us the total patent purchases expense, that will be satisfactory.

"The Witness: If you are satisfied with the total figure, I can give you that. For the year 1923, the amount—or cost of the patents purchased, that is, the actual cost paid [fol. 6788] for patents, including those purchased from the Western Electric Company, and the honorariums, was $180,696."

For the year 1924, $220,417; 1925, $137,002; 1926, $80,138; 1927, $155,445; 1928, $314,570; 1929, $77,818; 1930, $298,976; 1931, $136,692—that is exclusive of the expenses incurred in connection with the purchase and litigation of the patents.

For the year 1923, legal expenses in connection with purchase, litigation, and so forth, of patents, $157,621; 1924, $129,691; 1925, $151,239; 1926, $196,848; 1927, $218,680; 1928, $185,627; 1929, $192,921; 1930, $220,199; 1931, $389,788.

Those figures that I have just read include the cost of litigation of patents as well as the cost of acquiring. These are the figures, in so far as we have been able to keep a record of those expenses. In this sheet I have taken the cost of those patents, and have expensed them. That is the term that we accountants use in charging them up in the year when this expense was incurred.

I followed that method of accounting, because, in my opinion, it is a conservative procedure. We have followed that method to the best of my knowledge throughout the history of the business, but I might say that I can speak only of the years during which I was Comptroller. I know during the past ten years, or twelve years, we have expensed all patents. At the present time there are no patent charges in our capital accounts.

In so far as the amount to be allocated to the City of Chicago is concerned, whether we expensed these patents, or capitalized them would make very little difference year by year over the period. Of course, the amounts which I have read vary slightly from year to year, and if you include

the expenses of litigation, and the legal expenses in connection with acquiring patents, with the direct amounts, with the amounts paid out directly for patents, the amounts through the years run along fairly uniform, increasing as the size of the business increases.

Now, I might add that in the uniform system of accounts of the Interstate Commerce Commission which is, of course, [fol. 6789] my guide in keeping my accounts, question and answer 176 says: "The character of the patent purchased should determine whether or not the cost of any portion thereof should be charged to account 203"—that is, the capital account. They say further: "Any amounts paid for patents having an estimated service life of less than one year, patents of doubtful service value, patents in an undeveloped state, patents of small cost, and similar expenditures on account of patents, may be charged direct to account 675, Other General Expenses." And that is the account to which I charged them.

In regard to many of the patents which we buy, part of the life has already expired. In other cases we purchase ideas, speaking generally, or we purchase devices that have been developed to do a certain thing, but before that thing, that particular thing—or before that patent can be used in the telephone business it is necessary to do a very considerable amount of research work and adaptation. It may develop in the course of the study of the patent that it will not do in the telephone business what we had hoped it might do. Many of the patents, therefore, are in an undeveloped state. The individual cost of these patents may not be small, but in many cases it is. We have eleven thousand patents. Some have been small, and some have been substantial. Now, I do not know as to each what the result was, but taking the patents generally, the character of the patents is such that it is a more conservative treatment to charge them to expenses than it would be to capitalize them. Now, assume that these patents, we will say, had an average remaining life of ten years at the time purchased, and take into consideration that some of the patents are found (before the end of the seventeen-year period for which the grant was given) not to be useful in the business. Let us take the ten-year life, and amortize our total patent cost on a ten-year basis. Uniformly over the years the charges for amortization in my opinion would be more, or rather, would be equal—would at least be as much as the charges

which I have put into my accounts by charging them directly. Now, if we capitalize them, we would carry in our [fol. 6790] capital accounts a capital figure on which we should be entitled to a fair return. Under our present method of treatment, we have charged them to expenses; no amounts are capitalized; and the expenses are fairly uniform from year to year; and the practice, I believe, is the more conservative of the two practices that are available for their treatment.

During the period 1923 to 1931, the total direct payments for patents were $1,601,754. The legal expenses in connection with purchase, litigation and so forth were $1,842,614, or a total of $3,444,368. Now, if we took a seventeen-year period and added to this amount certain engineering investigation costs of patents, I think our figure to the best of my recollection is about $6,400,000.

"Mr. Blackman: I offer the Legal Department allocation in evidence, which has been marked Exhibit A-160, subject, of course, to the objection of the defendants as to the Crunden exhibits, the figures taken from the Crunden exhibits.

"Mr. Haight: We would like to reserve any objection we may have until the conclusion of the cross-examination.

"Judge Wilkerson: Very well."

These three sheets are an allocation to the Chicago area of a fair proportion of the taxes of the American Company for the years 1923 to 1931, inclusive.

(Sheet marked Plaintiff's Exhibit A-161 for identification.)

These sheets were prepared at my direction and under my supervision. The figures appearing in column 1 I have taken from the books of the Company. The figures in column 2 are an allocation of taxes to so-called non-license activities, made by me. The figure in 1923 of $65,335, appearing in column 2, is 5 per cent of the total of the figure appearing against New York Excise, New York Franchise, Federal Capital Stock, and Stamp and Miscellaneous. I made the deduction of 5 per cent for the same reason as stated in my testimony yesterday for the Service Bureau, and for those other general items and in respect of any activity which the American Company might carry on which was not of benefit to the Long Lines and the associate companies.

[fol. 6791] Note in connection with the year 1923, and the same is true for other years, the last item reading, "Less amount excluded from statement of estimated costs", column 1, $14,911, and the same amount in column 2. In setting up this exhibit, I endeavored to reconcile it with the exhibit which I used in the Ohio rate case and which was furnished to counsel for the defendants. In that exhibit, I deducted directly certain items amounting to $14,911. I also made other deductions—or, I also gave further consideration to the taxes in this general over-all blanket deduction which I made from expenses in that case. But, having deducted the $14,000 in that case, and that deduction having been carried through into this exhibit, I felt it proper to show that deduction here, and to deduct it from the $65,000, leaving a net deduction from the $2,982,657 of $50,424. In other words, my $14,000 is really included in the $65,000. If I speak of my taxes before deducting the $14,911, then my deduction is $65,336. If I speak of my taxes after making the Ohio deduction, then my deduction in column 2 is $50,424. Now, the figures in column 3 are the difference between those appearing in column 1 and those appearing in column 2, and represent the amount which we consider allocable to the associated companies, including the Bell of Canada and the Long Lines. The figures in column 3 are merely column 1 figures—the remainder I get by deducting columr 2 from column 1. In column 4 I have developed ratios. The ratio in the left hand section of column 4 is a composite ratio of plant, employees, expenses and telephone revenues. That is the same composite percentage which I developed and dealt with yesterday. And I consider that ratio applicable because taxes have a relation to all of the activities of the business. The fifth column shows the amounts remaining after deducting the amount allocated to the Long Lines in column 4, but let me add here that we start with the taxes of the Company after having in the first instance excluded from the amount all of the taxes applicable to the Long Lines, and charged in their accounts in our routine day-to-day accounting; so that this allocation is an additional allocation to the Long Lines of its portion of the general department taxes, or the [fol. 6792] taxes belonging to the department giving a license contract service, to give to the Long Lines its fair proportion of those costs.

The Long Lines Company, as an operating telephone

company, has certain taxes of its own; and they are all charged against it, and none of them are included here. Those taxes run into several million dollars in a year. Having developed these figures here in column 5 for allocation to the associated companies, including the Bell of Canada and excluding the Long Lines, I have made an allocation to the Chicago area, and in doing so it was necessary to use a different treatment in respect of the various taxes. Where the tax was a common tax and related to the associate companies, including the Illinois Bell and the Chicago area, I have used the composite ratio, plant, employees, expenses and total telephone revenues, including stations.

That is the same ratio that I used yesterday to allocate between the associate companies, excluding the Long Lines, and the Chicago area of the Illinois Bell. I used that because I felt that that was a proper ratio, since taxes related to the entire business. I explained that yesterday. It is the same ratio developed in the same way, and for the same reasons.

Going back to column 1, the first line is, Instrument, Illinois Bell. I will state very briefly what that is.

During the period that the American Company owned the instruments, the contracts generally provided that any taxes in respect of the instruments, that is, the receiver and transmitter, which were assessed on that property, should be paid by the associate companies. But in the case of the contract with the Illinois Bell Company, and I think the Pacific Telephone Company, and the Cincinnati and Suburban Bell Telephone Company, there was a provision that any such taxes could be billed to the American Company, and those companies followed that course. They arrived at what was considered the amount of taxes applicable to the instruments in the properties here in Illinois, [fol. 6793] and billed that amount to the American Company, and we paid the bill. We paid what they said was their instrument tax. And to that extent the Illinois Bell, the Cincinnati Company, and one other company that I mentioned, had a little preferential treatment over the other associate companies.

I might add that we have shown here separately the amount of the Illinois Bell tax billed to the American Company, and in the second line we have the amount billed by the other companies which had this special arrangement in the license contract. Now, the amount of taxes billed to

the American Company by the Illinois Bell in 1923 was $58,913. I have allocated that against the Illinois Bell, and have allocated to the Chicago area 70.7 per cent, which is the ratio of the instruments in the Chicago area that year to the total instruments in the possession of the Illinois Bell.

In the next line is the word "Other." That represents the tax which we reimbursed to other companies than the Illinois Bell, and none of that is allocated to the Illinois Bell nor to the Chicago area.

My next item is Massachusetts Franchise—the Massachusetts Franchise Tax. None of that was allocated to the Chicago area. That is a tax in connection with doing business in Massachusetts.

The next item is New York Excise Tax, $84,503. I have allocated a part of that to the Chicago area.

The next one is the New York Franchise Tax. I have allocated a part of that to the Chicago area. The New York Excise tax is an excise tax which we pay in the State of New York, and the New York Franchise tax is a tax which we pay in the State of New York, because the home of the American Company is in the State of New York; it must have a home somewhere, and New York happens to be the home State, and the State which assesses the tax for our being there. Now, the business of the Company, of course, extending over the United States to all of the associate companies, it is, in my opinion, proper to allocate a part of the New York Excise tax, or New York Franchise tax, to the Chicago area, and in that allocation I have used [fol. 6794] the composite ratio. That is on the assumption that I would have to have a corporation to carry on these services, and that corporation would have to pay taxes to exist as a corporation.

The portion allocated to the Chicago area of the New York Franchise and New York Excise taxes I believe would be a little more than one-third of the $59,564, or approximately $20,000, in the neighborhood of that. That is just a rough approximation. I have not figured it out. I have all of the figures there, however, to make the computation.

The next item is Federal Capital Stock tax. The Federal Capital Stock tax in 1923 was $604,736. I have allocated to the Chicago area those three taxes and one other, together. The total is the $59,000 that appears in the last column. There are four items. A small item of stamp and mis-

cellaneous taxes is included in the credit which I have allocated to Chicago on the composite ratio, giving $59,000 —or producing $59,564. I have allocated all of that amount of Federal Income Tax to the associate companies, and the Bell of Canada, and the Long Lines, for the reason that all of that tax, in my opinion, was allocable to those companies.

We made a study and we found that, after assigning against each classification of revenues, the Long Lines revenue, the revenue from the license contract, and other revenues, we had more deductions in the miscellaneous group of revenues than we had taxable income, and that exhausted, of course, that revenue, and the remainder of the deductions, in order to be conservative here, were applied against the license contract sources,—the income coming from license contract sources. After we gave the license contract sources all of the deductions which belonged in that category, we gave an additional deduction for the balance of the deductions which we could not use up in connection with the non-license revenue. That is, we paid a great deal more taxes than are shown here as income taxes to the government.

Now, the effect of that is shown, if you look at the years 1929 and 1930, where, as a matter of fact, a red figure ap- [fol. 6795] pears, which figure is in part due to the fact that the deductions applied against the revenue from license contract sources in conjunction with adjustments, were sufficient to eliminate all of the taxable income in connection with our license contract activities.

The American Company paid in the year 1923 approximately three or four million dollars income taxes. I do not have any figures with me, and I hesitate to quote a figure definitely. That payment was on the amount due under the technical terms of the Income Tax Law, after deducting a large amount of bond interest which we had. And what I have just said is, in effect, that in determining the tax in connection with the license contract revenue, I have given credit for a considerable amount of the bond interest in arriving at the amount of the taxes allocable. And I have thereby reduced the amount of the taxes shown on these sheets, which I carry as an expense of the license contract. I have proceeded in precisely the same way in the years 1923 to 1927, inclusive.

In 1928 the capital stock tax shows a credit. In 1927 it

was only about one-fifth or one-sixth as much as it was in 1923. That is because the capital stock tax passed out of existence, I think in 1926. This small payment in 1927 was a hold-over payment. Then in 1928, when the returns were finally settled with the government, or an agreement was reached as to what we should finally pay, we received a credit, and that is reflected in 1928, because that is the year in which it appears on my books.

The Federal Income Tax had been reduced to very small proportions by 1928, and in 1929 and 1930 I show credits for Federal Income Tax. That is due to three factors. We sold the instruments in 1927, and in connection with the sale of the instruments reduced the license revenue—or the license contract charge, 2 per cent. We had also previously made another deduction of one-half per cent, so, as compared with 1923, we were collecting 2 per cent, and 1½ per cent, in the later period, as against the 4½ in the earlier period.

Now, then, in the later period also we had other interest [fol. 6796] deductions, bond interest deductions. Then, as I have already stated, some small part of the credit in the years 1929 and 1930 is due to adjustments in our tax accruals. We account for taxes on an accrual basis, and from time to time as we receive advices from the government as to the taxes payable under a particular return, we review our accruals and adjust the amount in our tax reserves; and to the extent that such adjustments were in the picture —they were not large in amount—they are reflected in the red figure in the years 1928 and 1929. With the exception of these credits that appear in 1928, 1929 and 1930, I have proceeded in those years in the same manner in which I have proceeded in the years preceding.

In my opinion, the figures which appear in the last column to the right on these three sheets represent a minimum amount for allocation to the Chicago area as representing its fair share of the expenses of the American Company for taxes, in connection with the operation of its license contract.

"Mr. Blackman: I offer the sheets, Plaintiff's Exhibit A-161 for identification, in evidence.

"Mr. Haight: We wish to make the same reservation of our objection, if your Honor please.

"Judge Wilkerson: Very well."

These sheets, Plaintiff's Exhibit A-162 for identification, were prepared at my direction and under my supervision. The first of the two sheets is a statement of the number of telephone instruments, receivers and transmitters charged to associate companies, Long Lines, and the Chicago area during the years 1923 to 1927, and when I say "charged" I use that term in the technical sense, that is, on our books in New York the instruments are set down company by company and charged out against the companies to which you have delivered them. And they are there charged out against the particular company that is in possession of them for the time being. This sheet shows no money figures. These are instrument figures.

The figures shown in the first column were taken from the books of the American Company. Those in the second [fol. 6797] column were also taken from the books; that is, the first column shows all of the receivers, transmitters and induction coils that we had issued to the various operating units of the Bell System. Column 2 shows the very small amount—that is, .06 per cent, which was charged to the Long Lines. They practically use none of these instruments, only, a few head sets for Central Office use. Column 3 is just the balance after deducting the Long Lines figure. Column 4 shows the instruments in the Chicago area; that is, the actual number as shown on the reports of the Illinois Bell Telephone Company for the Chicago area, for the years indicated. And that is a percentage of 6.6 per cent in 1923, of the total instruments of the associate companies, excluding Long Lines.

The figures to the right are merely the Illinois Bell figures for the whole Company, and the relationship between the Chicago area figures and the Illinois Bell. The figures in column 4 are the instruments which we have charged out against the Illinois Bell Company on the American Company's books. The American Company's books do not show a charge-out for instruments to the Chicago area, but the Illinois Bell Company's books do show that; and their reports to us show what their books show. So all of these figures that we are dealing with here are merely book figures, which I have not changed or modified in any way.

"Mr. Blackman: I will offer the first sheet, Plaintiff's Exhibit A-162 for identification, in evidence.

"Mr. Haight: May we again make the usual reservation with reference to this exhibit?

"Judge Wilkerson: Very well."

This second sheet of Plaintiff's Exhibit A-162 for identification was prepared at my direction and under my supervision. It is an allocation to the Chicago area of its fair proportion of instrument expense incurred by the American Company during the years 1923 to 1927, inclusive, and by "instrument expense" I mean both the expense of repairs and the expense of depreciation. The total figures shown in column 1 were from the books of the American Company. [fol. 6798] The percentage .06 shown for the year 1923 in the left section of column 2, is the same percentage which was shown on the preceding sheet. I have just taken it bodily from the preceding sheet. It was the actual instruments; it represents the percentage of instruments actually held by the Long Lines.

I then proceeded in the same manner in which I have proceeded generally in my other allocation exhibits, to allocate to the Chicago area its fair share. Those figures are shown in the last column to the right. In my opinion, they show a minimum amount to allocate to the Chicago area for its fair share of the expense of the American Company in connection with maintenance and annual depreciation charges of this class of property.

The table below is a statement of the depreciation expense included in the figures appearing in the upper half of the sheet. Those figures are also taken from our books directly and without change. The same is true of the figures in columns 1 and 2 of the table above. Of course, I have stated that we have no allocation on our books of figures to the Chicago area. And the figures in column 4, for allocation to the Chicago area, come from the figures on the preceding sheet which I have previously testified to. The figures for the Long Lines are a computation. This paper was prepared under my supervision.

(Paper marked Plaintiff's Exhibit A-163 for identification.)

The statement is a computation showing the fair allowance or credit to the American Company, against its license revenus received from the Chicago area, in recognition of the American Company's furnishing the instruments used

in that area. These figures here are not in addition to those that were just put in, with regard to the instrument expenses. That is, they are not in addition in the sense that these figures shall be added in their entirety to the figures which I have already given. Some of the figures already given are included in these and should be deducted in determining the total amount; or, putting it another way, the figures which I have in the record are one approach to the [fol. 6799] problem, and this statement is another approach to the same problem—in meeting the same problem. The figures in the record represent the actual dollar costs to the American Company as shown by their books. This sheet shows what is, in my opinion, a fair allowance to be made on the basis of all factors concerned.

Taking the first line, average current cost: that is the current cost of the instruments to the American Company, taking the instruments in service in 1923. New instruments, purchased from the Western Electric Company, would have been this amount; that is, if an equivalent number of instruments had been puchased, they would have cost this amount, equivalent to the number here stated. The number here stated are those in use by the Illinois Bell in the Chicago area. And so I have just applied to those actual figures of instruments in use—or rather receivers, transmitters and induction coils in use, the figures of what those classes of apparatus were costing the American Company in the year in question, that is, its actual payments to the Western Electric Company. Those payments were somewhat, even substantially, lower than the published prices of the Western Electric Company. I am taking here the actual payments made by the American Company. This is based on the actual prices paid by the American Company in that year.

Line 2 is designated as Actual Depreciation, 8 per cent of column 1. I took the 8 per cent figure from Plaintiff's Exhibit A-32, pages 8 and 9, in the record in this case, as representing the actual depreciation in the instruments in question.

Line 3 is the difference between line 1 and line 2. It is the current cost less 8 per cent Actual Depreciation. And that would be reproduction cost new, less actual depreciation.

In line 4 I have Depreciation Expense. That is the annual charge for depreciation. That is the same rate that I have

used in the computations already in the case, and taken from the books of the American Company. It is the rate which it had used for some time previous to this period.

In line 5 I have assumed that the American Company [fol. 6800] should receive a return of 8 per cent on the amount invested, or on the amount represented by these instruments, at current cost, less depreciation of 8 per cent. In other words, line 5 is an application of 8 per cent to the figures in line 3. Line 6 is merely a total of 4 and 5.

I have line 7, Margin for Additional Instruments. As to that: in addition to the instruments actually in the Chicago area in these years, it was necessary for the American Company to maintain the reserve supply, and that reserve supply was considered at 6 per cent of the amount of instruments actually in the Chicago area. I have taken 6 per cent of line 6. I might have carried the computation through, but in the interest of simplicity I have just added 6 per cent. Line 7 is 6 per cent of line 6. As a matter of fact, those instruments that are held in reserve are all new instruments. And this method of treatment is, in effect, considering them as of the same depreciated character as those that were in the hands of the Illinois Bell.

Line 8, Instrument Repairs: that comes bodily from my preceding exhibit. The last line on this sheet, line 9, purports to show the result that I am after. In my opinion, that line shows a minimum amount that should be allowed for the use by the Chicago area of the instruments furnished to it by the American Telephone and Telegraph Company, and the service which the American Company gave it in connection with those instruments.

"Mr. Blackman: I offer the exhibit, A-163 for identification, in evidence.

"Mr. Haight: We would like to make the same reservation, if your Honor please."

(Sheets marked Plaintiff's Exhibit A-164 for identification.)

These sheets were prepared at my direction and under my supervision.

They show the average cost of the funds used in the business of the American Telephone and Telegraph Company for the years 1923-1931, inclusive. The figure showing that [fol. 6801] fact is the last figure at the lower right hand corner of the statement. It is 6.87 for the year 1923. I

started with the capital stock of the Company. The average amount outstanding for the year appears in the first column of figures. In the second column are shown the dividends paid on that stock. The third column shows the percentage relation of the dividends to the average amount outstanding during the year. The second line shows the capital stock premiums, total premiums received by the American Company up to the end of 1923. There being no charges made directly on these premiums, I have no figure for the second column, nor the third column; but, of course, the item of capital stock premiums must be taken into consideration. That is, in effect I have treated this as if I got that money for nothing. But it must be considered in conjunction with capital stock. The third line shows the total for the capital stock and capital stock premiums.

The last column to the right shows the average rate stated in per cent on the total money in the business, received from capital stock and capital stock premiums. And that produces the rate that I have put down there as the rate the money cost us: 8.19. Now, in the fourth line, you see Surplus Unappropriated and Appropriated of the Company, the average amount on the books of the Company for the year 1923 being $110,176,041. I show no figure in the second column, treating this surplus as not costing the Company anything directly by way of fixed charges, or capital payments. I have no percentage in the last column.

Now, taking the total of the capital stock, capital stock premiums and surplus, the facts are shown in the fifth line. That is 7.17, which is the average rate paid, per cent, on our capital stock, including premiums and surplus equity.

The next line shows the facts as regards capital stock installments. The average amount in the business during the year was $19,431,657. On those installments we paid interest of $1,444,819, or at the rate of 7.44 per cent.

The next item is Funded Debt. The average amount in the business during the year is shown in the first column of [fol. 6802] figures. The interest and amortization charges applicable to that debt for the year 1923 are shown in the second column. The third column shows the average rate paid in per cent on bond money during the year—that is, on funded debt during the year 1923. Then the last item, Loans from Associate Companies, shows the average amount of money we had in that year from our associate companies, total interest in dollars paid thereon, as shown

in column 2, and, in column 3, the average rate paid per cent.

Now, that last item is surplus funds which the associate companies left with the American Company, or, in other words, loaned to the American Company, pending their need for funds at a later date. All of these figures shown in columns 1 and 2 on this sheet come directly from the books. That is, they can be derived from the books. These figures are averages, and, of course, the books do not show averages; averages must be computed from the figures on the books. That is the only extent to which I have made any computations from the books. Of course the items of interest and amortization charges require us to bring together the various accounts on the books, of interest and amortization—or debt discount and amortization charges. That is all I have had to do, purely an arithmetical procedure with regard to the actual figures shown on the books. Anyone desiring to do so can take this statement, and go to the books, and make identically the same computations which I have made. Now, the average total funds in the business in 1923 were $1,135,740,062, and on that, dividends, interest and amortization charges amounted to $78,037,037, or an average rate of 6.87. I have made up a similar sheet for each of the years following 1923. The interest rate is somewhat lower there. That works out for the last year, 1931, as 6.42.

The lowest rate is for the year 1930. At that time we had used in the business something over $3,000,000,000. And our dividends, interest and amortization charges were $195,000,000. The capital stock premiums in that year were in excess of $264,000,000, the surplus included here in excess [fol. 6803] of $381,000,000. I computed all of these sheets in precisely the same way, so that the information is the same in each case.

"Mr. Blackman: I will offer the sheets, Plaintiff's Exhibit A-164 for identification, in evidence.

"Mr. Haight: The same reservation, if we may have it."

In these sheets, in developing the cost of money, I have included surplus. That is, I have included the surplus as without direct cost. I treated it as if the surplus had cost us nothing. I have made another calculation based on excluding the surplus. This is the sheet where I have developed those costs.

(Sheet marked Plaintiff's Exhibit A-165 for identification.)

I have developed them correctly to the best of my knowledge.

"Mr. Blackman: I will offer that sheet, Plaintiff's Exhibit A-165 for identification, in evidence.

"Mr. Haight: The same reservation."

If it were desired to determine the cost of money in my Exhibit A-164 on the basis of excluding the surplus, and not including it, all I would have to do would be to substitute the figure shown in the right hand column for each of the years on this sheet, for the figure shown in the lower right hand column on each of the sheets of Exhibit A-164. It merely means the substitution of the figure opposite the particular year in the right hand column of this last sheet, for the figure in the lower right hand corner of the sheet of Exhibit A-164 of the corresponding year.

Exhibit A-166 for identification was prepared at my direction and under my supervision. It shows an allocation to the Chicago area of cost of carrying investment in telephone instruments used in rendering license contract services. This is an actual cost computation and I should add, in regard to the heading, telephone instruments used by the American Company in rendering license contract services. The figures were taken from the books of the Company, directly and without change, excepting where the figures are computations.

[fol. 6804] The figures for the year 1923: the figure for total investment is an actual book figure, and the figure for depreciation reserve is a book figure. The same is true as to other years. The remainder of the figures are computations based on book figures, merely an arithmetical computation from the book figures. No judgment, or anything of that kind, enters into that. The figures in column 1 are the aggregate charges at 6.87, or the rates that have been used for the various years applied to the difference between the total book investment of the American Company, and the depreciation reserve appearing on the books. That is, the figures in column 1 show the total cost of carrying the investment in the instance which we are considering. And that total cost is obtained by applying the rate figure of carrying charges, in the case of 1923, to the figure of $16,318,631. 6.87 is a percentage taken from the exhibit just introduced

I have proceeded in the other columns to the right to allocate to the Long Lines and to the Chicago area on the same basis that I followed in the exhibits which I put in yesterday. I used the same general method. I used a ratio of .06 per cent for Long Lines. That is the percentage of instruments in possession of the Long Lines to the total of all instruments in the hands of the Company—the same percentage I testified to previously today. And the same basis was followed in arriving at the allocation to the Chicago area; it is also based on instruments allocable to the Chicago area. It is the same figure that I dealt with on the other exhibit this morning.

I have proceeded in precisely the same way with regard to each of the following years. I start with 1927 on this sheet because the instruments were sold at the end of 1927. In my opinion, the figures that appear in the last column to the right on this sheet show a minimum amount to be allocated to the Chicago area of the Illinois Bell Telephone Company as its fair share of the expense of the American Company in carrying the cost of its investment in the instruments. And it represents the cost to the American Company of carrying the precise number of instruments that were [fol. 6805] delivered to or held for the benefit of the Chicago area of the Illinois Bell Telephone Company.

"Mr. Blackman: I offer Plaintiff's Exhibit A-166 for identification, in evidence."

These sheets, Plaintiff's Exhibit A-167 for identification, were prepared at my direction and under my supervision. The sheets purport to show an allocation to the Chicago area of the cost, net, of carrying investment in real estate and office furniture and fixtures used by the American Company in rendering license contract services to the associate companies and Long Lines for the years 1923 to 1931, inclusive.

Taking the year 1923: the item, "Total Investment", is derived directly and without change from the books. That is also true of the figure shown for "Depreciation Reserve". The fourth item, "Rent", can also be obtained from the books. The third item is a computation representing 6.87 per cent of the difference between the total investment and the depreciation reserve, as shown on the two lines immediately above. That $638,374 has already been accounted for in my figures. That is the amount that is spread over the other departments of the American Telephone and Telegraph for rent.

In keeping our accounts on a departmental basis, so as to make them of value for administrative purposes, we spread the rents into the departmental expense accounts. Now, here I am excluding all those rents, and am also giving credit for any outside rents which we received on this investment. I deducted that from the figure of $859,149 in the year 1923, developed by applying our cost of money for that year against the net investment in that year.

I consider that in 1923 every dollar in the business cost us 6.87. Now, I have applied the 6.87 to the $12,505,000 in line 3 for the year 1923. Now, I have offset against that carrying charge, computed at the rate 6.87, whatever rents we received or charged in that year, in respect of the property here considered. And the difference is that that figure of $220,775 in my first numbered column.

The rent that I credit here, $638,374, for the most part was [fol. 6806] a bookkeeping charge, and, to the extent of the bookkeeping charge, it represents a rent figure covering house service, plus a 5 per cent return on the property. That is, all that the American Telephone and Telegraph Company charged up against the tenants of its New York building, these various departments that have shown their expenses before this Court, was a 5 per cent return on the money. I should change that. It represents the floor space—or the house service charges, plus the interest, plus 5 per cent on the capital stock of the building corporation. Now, to the extent that the other rentals accrued here, they are the actual rentals received.

Now, then, in column 2 I have "Non-License". I get at that as follows: for the year 1923, the last line of the data is marked "Balance". The amount in the column "Non-License" is 5 per cent of the amount in column 1. I have excluded 5 per cent of the cost for the same reason that I yesterday excluded 5 per cent of the departmental costs, because of services rendered by the American Company of benefit to others than the associate companies and Long Lines, so I have carried the 5 per cent deduction through to this computation.

Now, immediately above the line I just referred to, is the line, "Less Amount Excluded from Statement of 'Estimated Costs, Etc.' "; that figure is included here to reconcile these statements with the exhibits introduced in Ohio. In those exhibits, I excluded directly $14,147. That is the same figure that I spoke of before, put in here for the same purpose.

I excluded as a total $24,478, $14,000 already excluded from the figures from which I start, and $10,000 additional excluded now. I have proceeded in precisely the same way in each of the following years in these columns 1 and 2.

Column 3 is the difference between columns 1 and 2, arrived at by deducting column 2 from column 1. From that point on, I have proceeded to allocate to the Long Lines and to the Chicago area in precisely the same general way that I testified to yesterday with regard to it. In making the [fol. 6807] allocation, I used the composite ratio of plant, employees, expenses and total telephone revenues for the Long Lines, and included in that ratio, in applying it to the Chicago area, the stations. I have proceeded in the same way for each of the years subsequent to 1923 in each of these columns 3 to 6, inclusive.

In my opinion, the last column to the right on these two sheets represents a minimum amount to allocate to the Chicago area of the Illinois Bell Telephone Company as its fair share of the cost to the American Company of carrying this investment in real estate, office furniture, etc. This is the building space and the furniture and so on used by the people who were working on license contract services. This is the additional amount I figure they would have had to have over and above the rent charges that were actually made in order to meet their expenses. These amounts are not included in any other figures which I have introduced.

During the first three years shown on this exhibit, the American Company owned approximately one-half of the headquarters building, the section known as the 205 Broadway section. The portion of the building known as the 195 Broadway Building had been built earlier, and it was owned jointly by the American Company and the Western Union, 70 per cent by the American Company and 30 per cent by the Western Union. And in that case we owned stock representing our interest. In the case of the 205 Broadway Building, we actually owned the building for the years 1923, 1924 and 1925. At the end of 1925, the building was sold to the 205 Broadway Corporation, and we took stock and notes for our interest. That explains why the figures are larger in the first three years than in the later years.

I have not included in these figures anything for expenses of the 195 Broadway Company excepting as we paid rent to the 195 Broadway Corporation. But this is a computation based solely on the additional carrying charges with regard

to the 205 Broadway Company, which we owned for four or five years outright, and which we then transferred to a corporation which we owned outright, plus office furniture and fixtures.

[fol. 6808] The rent to which I just referred, paid to the 195 Broadway Corporation, would not appear in this statement at all. That would appear in our departmental costs. I call this "Cost of Carrying Investment in Real Estate, Furniture, Etc." The "Etc." covers such things as partitions and little odds and ends, temporary partitions, and we might have an automobile, something of that kind; trivial things.

"Mr. Blackman: I offer these two sheets, Plaintiff's Exhibit A-167 for identification, in evidence.

"Mr. Haight: We would like to reserve any objection as to these until cross-examination."

This sheet, Plaintiff's Exhibit A-168 for identification, was prepared at my direction and under my supervision. The sheet is merely a summary of the two exhibits just introduced. That is, a summary of the exhibit showing the cost of carrying the telephones, and the cost of carrying the investment in the real estate and office furniture, and combining the two under the caption, "Total Physical Property Used by the American Company in Rendering License Contract Services".

"Mr. Blackman: I offer this sheet, Plaintiff's Exhibit A-168 for identification, in evidence."

This sheet, Plaintiff's Exhibit A-169 for identification, was prepared at my direction and under my supervision. It purports to show the average funds held available by the American Telephone and Telegraph Company to meet the current cash requirements of the associate companies, Long Lines, American Telephone and Telegraph Company, and for the Company's general purposes, separate from the needs of the Long Lines Department. There are two sheets.

The first sheet is my summary, and the other sheets show how I developed some of the figures on the first sheet. The first sheet shows the total amount of funds held available during the year, and the allocation of the principal amounts as between the various units. Taking my first sheet, I get the figures that appear in column 1 from the books of the Company. They are the amounts of money I have held dur-

ing the year available for general use, that is, the average total amount held available during the year for all purposes. [fol. 6809] I have made an allocation of that in the following column.

Column 2 is my estimate of the amount which the American Company would require for its immediate general purposes, and I want to be specific regarding that. When I say, "For its immediate general purposes," I mean for purposes other than performing its services to the associate companies and the Long Lines. Those amounts for the years 1923 to 1928 are small amounts, $5,000,000 and $7,000,000.

In the years 1929, 1930 and 1931 they are vastly greater. That is because from 1923 to 1928, inclusive, we made no attempt whatever to finance the Western Electric Company. There were small amounts borrowed from that Company, and we loaned, from time to time, small amounts of surplus funds to the Western Electric Company, merely as a convenience and to get the best over-all return for the System from our money. But in the year 1928 we definitely undertook to finance the needs of the Western Electric Company, and that is one reason why the amount for 1929 is considerably higher than the amount for 1928.

Now, a special situation arose in the years 1930 and 1931. The amounts in those years included here in the column for the general purposes of the American Company for non-license contract activities, are simply arbitrary amounts of cash put there to keep the amount held available for the associate companies at what, in my judgment, was a minimum figure required for the associate companies and the Long Lines.

We found ourselves, due to the business depression, in a position in 1930 where we had a very large cash balance, which situation arose from conditions which were entirely out of our control, and, instead of assigning that cash balance to the associate companies as held for them, I simply put the bulk of it into the column as held by the American Company, and have excluded the costs to the American Company in respect of that money, although I would have been entirely justified in having kept it with the funds available for the associate companies.

[fol. 6810] Briefly, here was the situation: at the end of 1929 the associate companies, in reporting to the American Company their construction programs for the year 1930, advised us that the construction programs would be in the neighborhood of $680,000,000 to $700,000,000.

Now, that was the picture we had to look ahead to. We used up practically all of our money in 1929, and early in 1930 we were forced to finance, and we put out a bond issue, to carry the needs of the associate companies for the early part of the year.

Now, that money, at the rate the associate companies and Long Lines were drawing, would have been consumed by March. We were up to the task of new financing. We had issued two bond issues, one in 1929 and one early in 1930. We then put out a stock issue in May, and, in conjunction with the stock issue, there were paid into the American Company large amounts of premiums from persons who had bought the convertible bonds of 1929.

Now, everything would have been fine and we would have required that cash, but the business depression began to have its effect in the summer of 1930, and the associate companies that had told us they would need large amounts of cash began, one by one, to advise us that they would not need it, that they would not have the requirements that they told us, and, as a result, we had no immediate occasion to use the funds, and they were left in the possession of the American Company.

Now, I might very properly include those funds as held available for the companies, because they were acquired to meet the needs of the companies, but I have not done so in this statement. I have taken the bulk out, and have set them aside, and have not included in my license contract costs the cost of a considerable part of the funds that were held, and that is true for 1929 and 1930.

The amounts that I have set down here as held for the associate companies appear in column 3. Those amounts [fol. 6811] are the difference between the amounts appearing in the first section of column 2 and the amounts appearing in column 1. Column 2 is deducted from column 1.

In making the allocation to the Long Lines here, I used a new composite, a composite of ratio of estimated requirements, plant investment and gross additions. Those factors, in my judgment, represent the best measure of the demands of the Company for money, estimated requirements being the picture that the Company has ahead for the year, the plant investment representing the size of the property, and the gross additions the gross volume of construction activity.

Now, the use of that percentage allocates a considerably larger portion to the Long Lines than other composite percentages which I have used in connection with other exhibits. Having allocated the amount to the Long Lines and deducted that, I get the balance that should be allocated to the associate companies. That is shown in column 5.

My allocation to the Chicago area is also made on the basis of estimated requirements, plant investment and gross additions. There the percentages reflect the estimated requirements for the Chicago area.

In my opinion, the figure shown in the extreme right hand column on this sheet represents the minimum amount that should fairly be allocated to the Chicago area as its part of the funds held available by the American Telephone and Telegraph Company for the associate companies during the years in question; the amount of the funds actually held available for the Chicago area.

The second sheet is an allocation to the Chicago area of the estimated costs incurred by the American Company of holding funds available for the years 1923 to 1931, inclusive, and the figures in the first column are the total costs of all funds held available by the American Company.

The ratio appearing in column 2 is the same ratio which appears in the exhibit immediately preceding. It is the ratio of the amount of funds which I have set aside for the non-license activities of the American Company, in relation [fol. 6812] to the total funds held available, and I have carried that ratio over into column 2 as the basis for allocating costs.

Column 3 shows the amounts remaining after deducting the amounts in column 2 from column 1. That purports to show the amount to be allocated to the associate companies and the Long Lines. In column 4, I proceed to take out the Long Lines portion. I take it out by using the same ratio that I used in allocating the funds held available, that is, the composite ratio of estimated requirements, plant investment and gross additions. It is the identical figure. Having done that, that leaves me with the amount to be allocated to all the associate companies. This is in column 5. Then I allocate the part of that which, in my opinion, should go to the Chicago area. I do that in column 6. My ratio there is the composite ratio of estimated requirements, plant investment and gross additions. Those are precisely the same figures that appear on the other sheet of this exhibit.

In my opinion, the figures which appear in the last column to the right of this sheet show a minimum amount to represent the fair share of the Chicago area of the Illinois Bell Telephone Company of the cost to the American Company of holding funds available for the use of the associate companies.

"Mr. Blackman: I offer the two sheets, Plaintiff's Exhibit A-169 for identification, in evidence.

"Mr. Goldstein: So that the record will be clear, in our calculations on license contract, there is to be no allocation to the Chicago area for losses on loans?

"Mr. Blackman: We will make, as we now propose, no specific allocation to the Chicago area. We are including that item in our general expenses, general costs.

"Mr. Goldstein: Is there to be some more evidence on the license contract, to show some more allocation of costs, or are you completed?

"Mr. Blackman: We have completed. We are going to give you a summary figure, which will include a general figure for that."

[fol. 6813] Cross-examination.

By Mr Goldstein:

The telephone instruments were sold to the Illinois Bell on December 31, 1927. They were also sold to the other licensees on that date. I have not available for production this morning the bill of sale of the telephone instruments to the Illinois Bell. It is available. I am familiar with the contents of it, generally, or the basis upon which the sales were made.

"Mr. Goldstein: Will you please state the basis upon which the selling price was established?

"Mr. Blackman: Of course, this is not cross-examination The witness has not been asked anything about that. I merely wish to call the attention of court and counsel to it.

"Mr. Goldstein: I will connect it up.

"Judge Wilkerson: We will allow pretty liberal cross-examination. If he has anything that is not relevant to the case, it is not considered. If what he has is relevant to the case, and you haven't gone into it on direct examination, if you call our attention to it, we will consider it as a part of his evidence, whatever that means."

I include in my exhibits an item for depreciation expense on telephone instruments. That depreciation expense was established on the straight-line method. There was a depreciation reserve that was built up as of December 31, 1927, on the books of the American Telephone and Telegraph Company.

May 19, 1932.

My department, in the determination of the principle underlying depreciation, and in giving advice to the associate companies in connection with that subject matter, works in conjunction with the Operation and Engineering Department. I co-operated with the other departments in representing the Illinois Bell Telephone Company and the American Telephone and Telegraph Company in connection with depreciation matters before the Interstate Commerce Commission.

[fol. 6814] Our Company expressed its views on behalf of the Illinois Bell Telephone Company and the American Telephone and Telegraph Company for purposes of depreciation, and the factors to be taken into account, and so forth.

Our position was presented in a public hearing, at which we had witnesses present—Mr. Crunden; and the presentation was in charge of our Legal Department; but prior to that time, I think it was back in 1921, I did prepare and send a letter to the Interstate Commerce Commission. That was the very first chapter in the depreciation hearing. I am thoroughly familiar with the accounting phase of the principles underlying the depreciation expense; I assume I have gathered some knowledge over the years.

In determining the depreciation expense on telephone instruments, while the title was held by the American Telephone and Telegraph Company, my procedure was to ask our Operation and Engineering Department for their recommendations as to service life and salvage, and their views as to what would be a proper rate.

I had to do with the determination of the rate of depreciation on telephone instruments to the extent that I discussed the rate with the engineers, because I wanted to be satisfied when a charge was made in my accounts, that it was a proper charge.

The only factors that I know are taken into account in determining the depreciation expense on the telephone instruments are service life and salvage, which we have taken into consideration.

I depended on the engineers to give me the factors of the service life. I imagine the factors of service life would be the period in which the instruments are in service; one factor is the time that the instruments are in service.

There are many factors that determine the life of a telephone instrument. A receiver and transmitter might be put into a telephone, and in a few weeks' time it might, for no reason at all that was apparent at the time it was introduced, be shown to be defective. That instrument would simply be bad, and it would have to be taken out. I do [fol. 6815] not think obsolescence enters into it as a factor. Inadequacy would not enter into it materially as a factor. It might; as the telephone art progresses, as better transmitters and receivers come along, we endeavor to keep the service at a high standard. Supersession by a new type of telephone instrument might enter into it in a measure, because, as I just stated, as the art develops, parts of the instrument might be changed to improve the service. I do not think you can measure exactly in percentage how any one of those factors enter into the picture. The whole story is: the instrument goes in, and it goes out, and that is largely influenced by the judgment of the management as to what is necessary to keep the standard of service in excellent condition—a very high standard of telephone service.

As to whether the same factors enter into the determination of the depreciation rate on telephone instruments, as would enter into the determination, say, of station apparatus, I am not an engineer; I am just an accountant, but I would say that each type of property would have to be considered by itself. That is, the situation as to the receivers and transmitters is one which, as I have said, is influenced by our endeavor to maintain a very high standard of telephone service. It is influenced by the research work that Dr. Jewett so thoroughly described, and all of those factors enter into the life.

Now, so far as the telephone stand is concerned, that is a piece of mechanism which might be influenced entirely by other factors.

As to whether the telephone instrument would ever be taken out of service because of inadequacy, or obsolescence, or because of a change in the art; take the inadequacy first. I presume if our people found that the instrument was not adequate to give a high type of service, and they had found something better, the instrument would be taken out for

inadequacy, because it was inadequate to provide the standard of service that we sought to give.

It would sometimes be replaced because a new type of redeiver or transmitter came into service. We would not withhold from the public a better type of telephone service, [fol. 6816] if there were a better type available, or if there were better facilities available than we had in place, and we had those facilities developed.

Service life and salvage were facts that were developed in our Engineering Department, and I do not know what the exact salvage or the exact service life was. I only know the rate which came out of the considerations. The rate as I have it was 7 per cent, and in earlier years it was 10, and then it was reduced to 8, and in 1923 it was reduced to 7.

Exhibit A-163 was prepared within the last week. Exhibit A-166 (this particular exhibit) was also put in this form within the last week, but similar data had been prepared for other cases during the last year. As far as I know, Exhibit A-163 was not delivered to the defendants until yesterday in the court room.

Copy of the bill of sale of telephone instruments to the Illinois Bell on December 31, 1927, is produced.

(The document was thereupon marked Defendants' Exhibit D-98 for identification.)

Exhibit D-98 shows the total amount of the selling price of the telephone instruments to the Illinois Bell for the whole Company. That was $3,497,535.26.

Defendants' Exhibit D-99 for identification, being a sheet prepared by me, shows the basis upon which I arrived at the selling price. Of course, that caption states that this was the average for nine months, the period ending September 30, 1927.

(The document was thereupon marked Defendants' Exhibit D-99 for identification.)

I think the sheet marked Defendants' Exhibit D-100 for identification, entitled "American Telephone and Telegraph Company, Analysis of Reserve for Depreciation of Telephone Instruments, years 1923 to 1927," looks like my handiwork.

(The document was thereupon marked Defendants' Exhibit D-100 for identification.)

Defendants' Exhibit D-100 shows that on December 31, 1927, prior to the sale of the telephone instruments, there [fol. 6817] was a depreciation reserve against telephone instruments of $23,345,905. On that date, there were also on the books of the American Telephone and Telegraph Company instruments used by the Long Lines Department, and instruments used by the licensee companies. But there were very few with the Long Lines. There were about 17,000 with a book value of $35,893, and the book value of the telephone instruments to the licensee was approximately $46,583,000. That would make the reserve somewhere around 49 per cent.

On December 31, 1927, we sold the telephone instruments that were used by the Long Lines Department to the Long Lines Department, at book cost less the full depreciation reserve of 49 per cent. That was because the Long Lines was a part of the American Company, and it was a transfer of the instruments to ourselves. For the purpose of the license contract, we have in a measure always treated the Long Lines as if it were a separate company; that is, so far as the accounts are concerned. The Long Lines keeps its own subsidiary accounts, and we keep the subsidiaries separate from the general departments.

At the end of every month, and at the end of every year, these accounts are combined, of course, into one, and all of these inter-departmental financial transactions disappear. But, as an operating unit, we have treated the Long Lines substantially in the same way that we treat the associate companies.

We sold the telephone instruments to the associate companies on the basis of current cost less 20 per cent.

The figure in the first column of Exhibit A-163 of $46,583,314 is, as stated at the top of that column, the book value with certain adjustments made in respect of instruments held by the Western Electric Company. Now, that is not the current cost; that is the book value before the sale, reduced by certain adjustments. That one adjustment was the instruments held by the Western Electric Company. That was $651,078. They were owned by the American [fol. 6818] Company, but were in the Western Electric Company's storehouses.

Now then, there is another deduction here of $35,893, which was the book cost of the instruments held by the Long Lines.

Now, I have not summarized here the figures representing the current cost of all of the instruments we had, computed as of the date of sale, but if you take this $38,000,000 here, and consider that as 80 per cent of the current cost, you can get your current cost. It would be approximately $47,730,000. That is, however, excluding the current cost of the instruments in the warehouses of the Western Electric Company, and the Long Lines instruments. That is the $600,000 item plus the $35,000. And if you want the current cost of the total instruments, you ought to add in the current cost of the other instruments.

It is approximately correct to state that we sold to the licensees the telephone instruments, which had a book value before the sale on the books of the Company of $46,583,314, for $47,730,000 less 20 per cent, or $38,183,000, with those slight adjustments that I mentioned. The current cost before deducting depreciation was slightly in excess of the amount which we carried.

It is not true that all but a million of that 20 per cent cut from current cost, would represent depreciation. You overlook the important factor that, between the time that those instruments were bought, and the date of their sale, there was a very substantial change in the value of the dollar, and the purchasing power of the dollar. Now, of course, we have got to take that into consideration. The dollars that were on the books of the American Telephone and Telegraph Company represented the cost of those instruments over a period of years to December 31, 1927, and that was $46,500,000. There was at that time a depreciation reserve of $22,000,000 against it.

The sale was made on the basis of $47,000,000, or $1,000,000 over the book cost, less 20 per cent, which gave $38,000,000, in round figures. However, the $47,000,000 is not comparable, so far as value is concerned, with the $46,[fol. 6819] 000,000 book cost. The value of the dollar has changed in that period very substantially. Property values have increased. We determined the measure of the increase by taking the current Western Electric price for the nine months from January 1 to September 30, 1927. The current price of the Western Electric Company, of course, was the then current price, and reflected the then value of the dollar. But some of the instruments that were on our books at $46,000,000 had been bought some years before at lower prices.

If the Western Electric Company were asked to sell those instruments that were on the books of the American Telephone and Telegraph Company on December 31, 1927, assuming that they were brand new, the Western Electric Company would have charged $47,300,000. The purpose of cutting that 20 per cent was to arrive at a very reasonable sale price. I said yesterday, I believe, that the record shows that the condition of those instruments was 92 per cent. Now, we took off 20 per cent to produce a sale price that was, in our judgment, very fair and reasonable to the companies. The 20 per cent is to take care of the condition of the instruments and considerably more, so that the price to the companies would be reasonable.

We had a reserve on December 31, 1927, of approximately $23,000,000 against the book value of those instruments. And the purpose of the moneys accumulated in that reserve was to take care of the ultimate retirement of the instruments, due to factors that enter into depreciation, or in any ultimate disposition we might make of them. The factor of depreciation might be varied because of a change on December 31, 1927, in the title to the instruments.

It is true that the telephone instruments were used by the Illinois Bell the day before and the day after the title was transferred, but conditions change. I do not know that the conditions changed because of the transfer of the title, although that is simply my opinion.

Speaking now about those things which were used by me in determining the depreciation expense prior to 1927, which resulted in the accumulation of a reserve of $22,-
[fol. 6820] 000,000, the mere bill of sale of those same instruments from the American Telephone and Telegraph Company to the Illinois Bell would not change the rate of depreciation expense but there are other factors that might change it very substantially.

Immediately after the sale, it proved that the amount that we had accumulated was more than was necessary to take care of the depreciation; but the day before the sale, or a month before the sale, I would say that the amount we had in the depreciation reserve was absolutely essential to the protection of our investment. We knew that the reserve was too much the minute we had negotiated the sale, and knew what we were going to get for the instruments, and knew what was left in the reserve after we wrote off our book value.

If the Illinois Bell had those instruments under the same conditions that the American Company had them, I should say that it would be foolish if it did not have the same size reserve; but conditions change, and the conditions under which the Illinois Bell holds those instruments, and the changed condition since, may give you another picture.

According to Defendants' Exhibit 100, the depreciation reserve was more than we needed. There was $14,000,000 left. We transferred it to surplus, from which part of it came. That part of it that came from surplus, came in 1912, and was $5,629,447.

The situation was this, briefly: prior to 1912, there were very few businesses in this country that carried depreciation accounting. They met the depreciation as it came along. In 1912 I think our business was one of the pioneers in setting up depreciation reserve. In 1912 we felt it wise to set up a depreciation reserve, and we reached into our surplus to take out $5,600,000 odd, and set it up distinctly as a reserve. We set it up as a foundation for a reserve for depreciation, which was then, I believe, 46 per cent of the book value of our instruments. Then we kept on for a number of years, and set aside 10 per cent, and then 8 per cent, and as we set aside 10 per cent, the reserve crept up [fol. 6821] to about 50 per cent—54 per cent, I believe; and then, with the use of the 8 per cent, it came down a little bit; and then, with the use of the 7 per cent, the relationship dropped still lower, until I think in the last year or so, for some temporary condition, or in the last two or three years, because we were putting in a great many new receivers and transmitters, our reserve momentarily went back to about 49 per cent. Now, the factors are perfectly clear on our books.

Telephone instruments were furnished to the licensees for many years. We collected 4½ per cent under the license contract, the same as we did from 1912 up to 1926. But there is no relationship between the depreciation expense which we carry on the books of the American Company, and the license revenue which the associate companies pay; no relation whatever.

We set up the depreciation expense because we knew that we had an expense of retirements to meet. We had depreciation accounting in one form or another in effect since 1909, and earlier than that. From 1909 to 1912, we

charged into our expenses amounts to take care of retirements to come.

As to whether there was a reserve account prior to 1912 on the books of the American Telephone and Telegraph Company for telephone instruments, I would have to refresh my memory, because I just came to the telephone business in 1912. I can and will check that. This $14,000,000 was left after we had written off the book value of the instruments. That did not represent a profit to the American Telephone and Telegraph Company. And that is because, in the first place, you cannot take $5,600,000 out of your surplus and then put it back and say that you have made a profit of $5,600,000.

Then, on the $9,000,000 balance there was no profit; that I do not consider to be a profit, because, prior to 1927, we simply charged to our expenses the rates of depreciation that we felt were proper, and we accumulated that amount of money in a reserve. We might have put into our operat- [fol. 6822] ing expenses 4 per cent or 5 per cent, and carried the rest to surplus as the years went on, and when we came to 1927, we would not have had any $8,000,000 difference. We had just as much one way as another. It was not charged against the licensee companies; the depreciation money was taken out of our earnings from whatever source those earnings came. We thought it wise and prudent business management to carry a good reserve against those instruments.

Exhibit A-162 shows that the depreciation expense that we were charging against the license contract revenues from 1923 to 1927 was $13,200,000, if I have added those correctly.

"Mr. Goldstein: And the purpose for that is to show that out of the moneys you collected from the licensees, you would use up $13,000,000 to take care of depreciation expense for those five years, is that right?

"Judge Wilkerson: I suppose the lawyer knows more about it than the witness does. I think you had better put that question to Mr. Blackman.

"Mr. Blackman: I will be glad to answer, your Honor.

"Mr. Haight: Well, since Mr. Blackman says he will be glad to answer, let us have the answer.

"Judge Wilkerson: Yes. You want to know what the purpose of the exhibit is.

"Mr. Goldstein: Yes.

"Judge Wilkerson: I think counsel would be the proper one to state it. Counsel says you may state it, Mr. Blackman.

"Mr. Blackman: Well, sir, that merely is a computation which we make here. As I say, and as I have said before to the Court, we charged nothing and have never charged anything against the license contract. We have charged 4½ per cent as the rate which we required them to pay for the services rendered. Now, we do not try, and never have until this case tried to figure up the items that we would contrast against that. Now, we feel that we are in that position, and are doing it. With that end in view, we have set forth what we think are the reasonable charges to [fol. 6823] set off against that, and among those charges is a reasonable depreciation on the instruments.

"We were carrying it on our books at 7 per cent for depreciation, so we set that up here in this exhibit as one of the things that this Court should consider in contrasting what we got with what we expended and suffered."

Witness continues: The items aggregating $13,000,000 are intended to represent real costs to the American Telephone and Telegraph Company in furnishing the telephone instruments.

They were amounts which were considered by our Operation and Engineering Department, and by myself, as reasonable costs to take care of our investment in the instruments. We found on December 31, 1927, that there was $14,000,000 left in that accumulated fund that we were not going to use.

As to whether if we had that money to take care of our cost and we were not going to use it, I would consider that a profit to the American Telephone and Telegraph Company, the answer is: I would not. Of course, as I have already said, the $5,600,000 was transferred out of surplus, and should not be considered as such. And the $9,000,000 was simply a return to our surplus of moneys that had previously been set up as depreciation; that is, moneys set up for the purpose of taking care of losses that we are going to have at the time of retirement.

During the years when we set up those amounts they were considered as necessary and proper costs. But at the end of 1927, we found that we did not need the $9,000,000 exactly for the purpose for which we had provided it. We

did not need it for any purpose in connection with telephone instruments, but it was a proper charge in the years in which it was made.

I have stated that part of this $9,000,000 is due to the change in price factors. Whatever it amounts to can be ascertained. Now, as regards the remaining $8,000,000, let us not overlook the fact, as I stated a few moments ago, that we charged 10 per cent depreciation for a good many years, [fol. 6824] and we built this reserve up to 54 per cent, in the years prior to the time we are considering in this case, and we used 8 per cent. We used 8 per cent for the years prior to this case, and you certainly accumulate more in a reserve by using 10 per cent, and by using 8 per cent than you accumulate by using 7 per cent; and so, when we come to the year 1923, when we start the 7 per cent rate, the amount that we have in that reserve as a basic amount is there because of the 10 per cent rate, and the 8 per cent rate, and you cannot say that the $8,000,000 at the end of the period, or the $9,000,000, is due to an excessive amount of depreciation charges during the years 1923 to 1931, inclusive, because, if you will look at the reserve, you will find that during those periods it just about kept the same ratio to book investment as it had at the beginning of the reserve account.

If we had not charged a single dollar to depreciation expense for the years 1923 to 1927, we would have come out exactly whole at the time of the sale, so far as reserve is concerned, but that would have thrown the burden of the years 1923 to 1927 into a period away back before this case ever came into existence. That is the burden of the American Company in taking care of its instruments.

In accounting, every year should take care of its own expenses. The function of accounting depreciation is to record the facts as we know them at the time we record them. Our depreciation expense is based upon our experience of the past, looking to the future. Looking at the future as of 1923, we were justified in setting up that depreciation expense. And we did. We did not take into account at that time the size of the depreciation reserve already existing.

We compute depreciation on the basis of the service life and salvage, as we see it. The reserve has nothing to do with it. The reserve simply reflects the results of your accounting, that is all.

When I set up the depreciation expense in the year 19

I took into account, as I said, the advice given to me by the Operating and Engineering Department as to service life and salvage. I do not see why anyone, in determining that [fol. 6825] depreciation expense, should take into account the depreciation reserve or the size of it.

I read the opinion of the Supreme Court in this case a long time ago, quite a while ago; I am not familiar with it. I think mention is made about the size of the reserve being an element in determining depreciation expense, but I do not know just what they did say.

Referring to Exhibit A-163: the 20 per cent was the deduction which the management, in its judgment, made as a fair deduction, so that the instruments would not be sold at other than a reasonable price to the companies.

Now, the 8 per cent that I have used here was taken from the testimony that had been put in in this case—I think it is in Plaintiff's Exhibit A-32, pages 8 and 9, where testimony was given by people who know the property, and who have intimately studied it, as to their judgment of what the actual depreciation in the property was.

The officers of the American Company and its Board of Directors, those who manage the property, determined the price at which the instruments should be sold. The matter of selling the instruments was discussed with the licensees, probably three or four years prior to the sale.

In 1927, on December 31, we sold those instruments at the current cost less 20 per cent. I don't know whether the President of the Illinois Bell was consulted specifically at that time or prior thereto as to the price which the Illinois Bell should pay for those instruments, but I know, as I have said, that for three or four years prior, the matter of sale of the instruments was discussed pro and con by the officers. I do not know what was discussed by Mr. Gifford with the presidents of the companies. I know the sale was discussed; I was so advised by the officers, and I was in conferences where it was discussed pro and con.

The certified copy of a letter to the Chief of the Depreciation Section of the Interstate Commerce Commission, which is dated March 24, 1921, and which is identified by Mr. Goldman as Defendants' Exhibit D-101, is a copy of a letter sent by me and referred to by me this morning.

[fol. 6826] When the instruments were sold to the Illinois Bell, I presume they were taken up on the books of the Illinois Bell, according to the accounting instructions, at

the price paid. That is my impression; that is what would naturally be done.

As to whether the President or any official of the Illinois Bell was consulted at the time of the sale as to the price to be paid for the telephone instruments, I have no definite knowledge that any specific request was made upon any man, or any specific discussion was carried on with any president as to the price. I assume that such discussion did take place. I don't know who set the price, but I know it was approved by our Board of Directors.

I took the price for the billing from the official action of the Company. The entire price was determined at one time.

As to what was the reason for selling them on that day, it was considered a wise and proper thing to do.

Prior to December 31, 1927, the associate companies did not purchase telephone instruments from the Western Electric, as the license contract of the American Company provided that instruments would be furnished under the license contract arrangement.

Concerning the reason why the arrangement was made that the telephone instruments should be rented from the American Telephone and Telegraph Company prior to 1927, instead of purchased direct, that arrangement was in existence a great many years. The American Company, as the parent organization of the Bell System, was interested in developing a very high class of telephone service throughout the country, and saw the need of a fine service, and the benefit of a good telephone service. Now, it felt that by owning these instruments, and by establishing an arrangement with the companies whereby they could get these instruments and return them promptly to the American Telephone and Telegraph Company without cost as soon as the instruments became in any way defective, or did not contribute to this fine standard of service, there would be an inducement to the license company to work for the maintenance of a high standard of telephone service.

[fol. 6827] Now, on the other hand, the situation might have been that, if the license companies had bought these instruments and owned them outright, they would have kept them in the plant just as long as they possibly could, to save expense, to the detriment of a fine telephone service. But, by making the arrangement of having the companies in a position to pass these instruments back to the Americ

Company and the Western Electric Company, and getting a new instrument as soon as one became defective, or as soon as a better instrument should be put into the plant, we were able to assist in the elevation of the type of telephone service.

Now, this matter of selling the instruments was discussed for some years before, but men like Dr. Jewett, who were interested in the high standards of service, advised strongly against the sale of the instruments. When 1927 came along, we felt that we had established a sufficiently high service consciousness, or exchange service standard, throughout the entire United States, in our local companies so that we could afford to sell the instruments because that pride of the companies in maintaining this high type of service would be such that they would take these instruments out and buy new ones as quickly as it was necessary to do it. Now, then, there was another factor that should not be overlooked. We were passing through a period of great scientific investigation and great research in the art of electrical communication and changes were possible and occurred, and it was felt by the American Company that it would be better to hold onto the ownership and control of these receivers and transmitters (which are really the heart of the instrument) so that they could develop them and keep pace with progress, and provide them to the companies whenever something came along that improved the service.

The cradle telephone first came into existence in our business about the latter part of 1926, I think. It had been approved for use by the licensees in 1927. It was not standard. There has been a real increase in the use of the cradle set throughout the Bell System.

[fol. 6828] In determining what the current cost was in 1927, I did not personally consult the records, but the Western Electric price lists are in the possession of my department, and were used during 1927 in checking the Western's bills that were rendered to us. We had those price lists likewise from 1923 to 1927, in checking the bills for instruments.

With respect to the sheets Mr. Goldstein identifies as Defendants' Exhibits D-102 and D-103, and states — are price lists sent to defendants, Exhibit D-102 being entitled "Prices of transmitters, receivers and induction coils sold to both Bell and non-Bell customers from January 1, 1916, to December 31, 1925," and consisting of three pages; and

Exhibit D-103, "Prices of transmitters, receivers and induction coils sold to Bell and non-Bell customers from January 1, 1926, to December 31, 1930": the first sheet appears to be a tabulation prepared by someone else than my people; and this second document is apparently a price list prepared by the Western Electric. I have undoubtedly seen these price lists prepared by the Western Electric, but I have not committed to memory the prices on the list. I have seen price lists such as mentioned here, as the second document, but to the best of my knowledge, I have never seen the first sheet.

I was generally familiar with the volume of the sales of telephones, receivers, transmitters and induction coils by the Western Electric to the American Telephone and Telegraph Company over the period of years. I did not commit the sales to memory. They are on my records.

Defendants' Exhibit D-104, which Mr. Goldstein states is a statement sent to defendants representing the sales of telephone receivers, transmitters and induction coils from 1916 to 1930, inclusive, appears to be a statement prepared by the Western Electric Company, and I had not seen that before.

I did not consult with Mr. Cox as to the reasonableness of the prices of the telephone instruments sold to the licensee company. I never saw any studies of the profits to the Western Electric on the sale to the American Telephone [fol. 6829] and Telegraph Company of the telephone instruments. We reduced the license payment from 4½ per cent to 4 per cent on December 31, 1925. Up to 1926, the taxes on the telephone instruments in the Chicago area were paid by the American Telephone and Telegraph Company.

The American Company continued to pay some taxes on the instruments of the Illinois Bell through 1926, and small amounts in 1927; but considerably reduced amounts below those paid in 1923, 1924 and 1925.

Referring to Exhibit A-161, in 1925 the American Telephone and Telegraph Company paid $61,824 for the taxes on the telephone instruments. In 1926, the American Telephone and Telegraph Company paid $1,540 for taxes on the telephone instruments in the Chicago area. The amount that the Illinois Bell paid is $2,187 and 20 per cent of that was passed. And that $2,100 compares with the $87,000 in 1926.

Now, the situation is this: without being too definite, I have a recollection that, at the time the license contract rate was reduced to 4 per cent in the case of all the companies,

we also took up with the Illinois Bell Company the matter of their assuming the taxes. But the taxes were a very small percentage of the reduction comprised in the one-half per cent.

It is correct that there were three companies which, under their license contract, had the American Telephone and Telegraph Company pay the property taxes on telephone instruments up to 1926 (one was the Chicago Telephone Company, another was the Pacific Telephone Company, another was the Cincinnati and Suburban) excepting as to such minor modifications as might have been made at the time of the reduction.

To the best of my knowledge and belief, it is correct that, prior to the reduction, up to December 31, 1925, the American Telephone and Telegraph Company was obligated to pay the personal property tax on the telephone instruments used in the Chicago area by the Illinois Bell Telephone Company.

After January 1, 1926, the Illinois Bell was obligated to pay this tax.

Now, we did pay some personal property taxes in 1926, [fol. 6830] and a few in 1927, which were holdovers from the previous period. But we did not pay those for the period beginning January 1, 1926.

The other licensees, prior to 1926, under their license contracts, assumed the obligation of paying the personal property taxes. They continued that obligation until after January 1, 1926. The reduction of one-half of one per cent in the license contract payment was made to all the licensees, including the Illinois Bell, on January 1, 1926. I am not familiar with the amount of personal property taxes paid by the Illinois Bell in 1926, except as stated on Exhibit A-161. I am not familiar with the amount paid by the Illinois Bell locally. I am making my statement on the basis of what they previously billed us, and I assumed they were diligent in billing us all that should be billed to us.

Exhibit A-169 was prepared within the last two weeks. This particular exhibit wasn't furnished to the defendants until yesterday, but they did receive similar data, I think last summer, at the time we sent them the data in the Ohio case; it is the same data, set up in a little different form.

I should say we did furnish defendants the data on the second page, which shows the average total amount held available during the year by the American Telephone and

Telegraph Company for general purposes, and for the Long Lines and the associate companies, and the basis of allocation. The amounts shown there as held available for general purposes were, I believe, on the exhibits we sent defendants. We never made the allocation to the Chicago area before because we had no occasion to do so. When we sent defendants the documents last July, we did not send them any allocation to the Chicago area.

Exhibit A-169 is different from the form in which we set the exhibits up in the Ohio case.

Referring to Exhibit A-169, we held available $77,800,000, as an average amount of total funds for the year 1924, of which I here allocated three million to the Chicago area. That money was held available, as far as the Chicago area is concerned, to meet the current money demands of the [fol. 6831] Chicago area; that is, money demands for any purpose for which the Illinois Bell would require money.

Those demands would be made known to us in two ways. In the first place, the provisional estimate of the Illinois Bell filed at the end of 1923 would show that they required a considerable amount of money,—or that they would require certain sums of money, and then throughout the year we would receive advices stating more definitely when the money should be delivered to them.

The provisional estimate that I am referring to as of the end of 1923, appears to be the Statement F, "Provisional Financial Plan, 1923," identified as Defendants' Exhibit D-105. That was sent to us.

The sheet which you have shown me here is the provisional estimate prepared in 1922 for the year 1923, and has nothing to do with the year 1924 at all. These requirements in Defendants' Exhibit D-105 are the requirements for the year 1923, and are $6,600,000, which corresponds to the figure shown in City's Exhibit 142-C (Rec. Vol. VI, p. 2294) as "estimated requirements" for the year 1923, $6,600,000.

Referring to the statement of the Company covering the financial plan for the year 1924, which is identified as Defendants' Exhibit D-106, according to this sheet taking just a straight mathematical computation, it would be seven million odd dollars, $7,636,000; but this is not the final story as to the estimated requirements. These requirements may be modified from time to time. This would be the starting point.

The total requirements shown in City's Exhibit 142-C for 1924 are $10,080,000, according to my records in New York.

"Mr. Goldstein: Now, accompanying this Exhibit-F was a letter of transmittal, as accompanies every provisional estimate, which I will identify as Defendants' Exhibit D-107, dated November 14, 1923, addressed to Mr. W. S. Gifford, Executive Vice President, American Telephone and Telegraph Company, and is, I presume, signed by the President of the Illinois Bell, there is a place for his signature. [fol. 6832] Will it be understood that that is the letter of transmittal which accompanied the estimate?

"Mr. Bracelen: Certainly, upon your statement, if that is legal evidence."

A copy of the letter of transmittal accompanying the provisional estimates goes to my department.

I saw the statement in this letter (Exhibit D-107) which reads as follows: that the proposed program totals $19,000,000 for gross additions to plant, including approximately $700,000 for additional plant for the Long Lines department in Chicago: "The completion of this program during 1924 will require $7,636,000 beyond our estimated current resources, but will not require any new financing." But that does not establish that this is the amount of the estimated requirements of the Illinois Bell for the year. This letter would establish a starting point.

Mr. Goldstein states that on December 20, 1923, there was sent a letter by Mr. Gifford to Mr. Abbott, President of the Illinois Bell, and on December 26, 1923, a letter from me to Mr. Garvey, the Vice President of the Illinois Bell, and hands me what he states are copies which are marked Exhibits D-108 and D-109, respectively. They appear to be correct. According to these letters, there was owing on open account from American Telephone and Telegraph Company to the Illinois Bell $11,124,796.52 on December 31, 1923. To the best of my knowledge, that is the correct amount.

The Illinois Bell put out a bond issue in the middle of 1923, and left between ten and eleven million dollars to meet future financial needs of the Illinois Bell. Now, they did not require the money, so they loaned the money to the American Company during the summer and fall of 1923. We had agreed with the Illinois Bell that we were to pay them the same rate of interest on this ten million dollars

as they were required to pay on the fifty million dollar bond issue that had been put out in June to retire the bonds which fell due in December, I think December 1, 1923. The Illinois Bell paid 5.53 on this new money, and we agreed to borrow it from the Illinois Bell at 5.53. Now, we had it on our [fol. 6833] books as an open account; it was a large amount, and at the end of the year we felt that it would be better for the Illinois Bell, and all concerned, if the Illinois Bell had that money invested in some form of Government security. We then transferred to them Government securities, but with a commitment to transfer those securities at a 5.53 rate, because we had previously agreed to borrow this money from them at that rate until they needed it in the business, and we wanted to live up to our commitment, so we gave them the Government securities, with the additional security afforded by the Government securities, and granted them the 5.53 rate. Now, the certificates that we sold to them in themselves were due on March 15, and we knew that they would be paid off at least by March 15, 1924, so, in order that we might make the best possible deal for the Illinois Bell Company in connection with these certificates prior to March 15, we put a clause in the letter that we could at any time prior to March 15 repurchase them, and if we did repurchase them, we would then take the money back into the business again, at the 5.53 rate.

The American Telephone and Telegraph Company owed the Illinois Bell $11,124,000 on December 21, 1923, just as we might owe the Bank of England, or anybody else, that amount of money. We owed them $11,000,000 in December, and we gave them the $11,000,000 Treasury Securities on a 5.53 basis. The notes were retired, and we took the money back again on a 5.53 basis. When I say "again," I mean on an open account loan.

During the year 1924, we liquidated the loan to the Illinois Bell, all but $2,000,000. We had to provide the funds to do it.

Referring to provisional estimate F for the year 1924, it is not entirely correct to say that it calls for repayment by American Telephone and Telegraph Company of $6,600,000 of money due to the Illinois Bell, as a method of financing their requirements of $6,600,000. Where it reads, "loan financing proposed for above," "net requirements," and "loans to American Telephone and Telegraph Company [fol. 6834] repaid, $6,600,000", it means that the American

Company would repay money to them that they had borrowed, just the same as if the Illinois Bell had resources from anybody to whom it had loaned money that would be repaid, as distinct from their being required to go and negotiate for new funds. That's all that means.

It is not correct to say that the estimated requirements of $6,600,000 that I speak of are the estimated requirements on the one hand that the Illinois Bell needs for its operation, and from the provisional estimate that same $6,600,000 would be estimated requirements that the American Telephone and Telegraph Company would require to repay its own loan.

The American Telephone and Telegraph Company had borrowed the money from the Illinois Bell, just as if it had borrowed it from anybody else, anywhere. And it paid the Illinois Bell a proper rate, and, while the American Telephone and Telegraph Company had that money, it was American Company money; just the same as when you go to a bank and borrow $5,000, I assume you feel that you have the right to spend it in any way that you please. The only obligation you have is to repay it when it becomes due.

The provisional estimate F simply said that the estimated requirements of the Illinois Bell Company for 1924 would be met by a repayment of a loan that they had made to the American Company. But, when the American Company came to repay that loan, it had to reach in its pocket and find the money. When it got the money originally from the Illinois Bell, it did not tag the dollars, it put those dollars in its treasury, it spent them in the business, and when the Illinois Bell wanted the money back, the American Company had to find it; so that the estimated requirements of the Illinois Bell are its gross requirements, and the financing service which the American Company renders the Illinois Bell is the gross financial service which is rendered. That is the view which you must take of the picture.

In Exhibit A-169, the funds that the American Telephone and Telegraph Company held on hand in 1924 were to meet a requirement of the Illinois Bell. The requirement to pay [fol. 6835] back something that is owing to the Illinois Bell is a bookkeeping matter.

The money which the American Company held available, the $77,800,000 in the year 1924, was American Company money. It didn't make any difference whether it borrowed the money from the Illinois Bell or the Bank of England, or

anyone else, it was its money. The Illinois Bell had given up responsibility for it, as long as it was getting a good return. We allocated a part of that as being held against the ten million demand which the Illinois Bell would make because it had a ten million estimated requirement. Whether that demand was met by paying them back a debt which we owed them, or whether it was met in some other way, in advancing the moneys and taking a new note, that, I say, is a bookkeeping transaction which does not go to the merits of the problem here at all.

In Exhibit A-169, I show as being part of the costs of the American Telephone and Telegraph Company in rendering this service of holding funds available, $111,000 for the year 1924, but I don't charge it against the license revenue at all.

I simply say this: that, in the year 1923, in so far as the pro rata part of the funds held available for the Chicago area are concerned, it cost the American Company $111,000 to carry those funds, and that $111,000 is the difference between what that money cost the American Company and what it realized on this money of the Illinois Bell, and all other surplus money that was in the possession of the American Telephone and Telegraph Company.

In 1924, the Illinois Bell's estimated requirements were $10,000,000. In November, the Illinois Bell sent us a statement showing its estimated requirements were $6,600,000.

The $7,000,000 stated in the provisional estimate was only the preliminary advice as to what the Illinois Bell expected its estimated requirements to be. We passed to the Illinois Bell in 1924, in gross cash, about $11,770,000. We owed them on December 30, 1923, before we gave them the Liberty Bonds, $11,000,000. Then we sold them the Liberty Bonds [fol. 6836] on that day, with an agreement to buy them back on March 15, and to establish an open loan again. If you ask me what we owed them on March 15, I would say $11,000,000. We had borrowed $11,000,000 again from them on March 15. But we might have borrowed that $11,000,000 anywhere. We paid them back during that year, $10,584,000. We did not pay them back in 1924 in excess of the amount that we owed them during that year. But we had borrowed the money from them, and when we had to pay it back, we had to reach into our pocket and find it.

We rendered a very good service in 1924, in satisfying the estimated requirements of the Illinois Bell under the licens

contract, for which we set up a charge of $111,000 shown in Exhibit A-169.

That service was: the Illinois Bell had $11,000,000 in March. In fact, we go back to January, because we were paying them 5.53 per cent on their money. They had that money. They probably could have invested it at 3 or 4 per cent in that period of time. We took it off their hands and gave them 5.53, held them free of all responsibility in connection with it; all they had to do was to say, "On such and such a date, we want $1,000,000. On April 2 we want $1,000,000. On May 3, we want $500,000; on June 21, $1,500,000; on June 30, $700,000; on July 1, $1,000,000; on August 30, $500,000; on September 30, $500,000; on October 1, $1,000,000; on December 1, $2,000,000; on December 31, about $1,400,000."

Now, they were relieved of all responsibility of investing the money and of safeguarding it; they could get it when they wanted it, as contrasted with the picture of taking the responsibility themselves for it, and taking a lower rate of return on it.

It was a fact that we carried the Illinois Bell Company's funds for them during all that time in 1924, and relieved them of all of the responsibility, and paid them 5.53. But that is just one year you have picked here. I want to make this clear. You have picked one year here, where the financial relations with the Illinois Bell are different in some respects from other years. But just confining ourselves to [fol. 6837] 1924, the Illinois Bell received a very distinct financial service from the American Company, in that we took all the responsibility for the $10,000,000, or $11,000,000, and paid them 5.53 on it, and gave them the opportunity to call it back when they wanted it; and I doubt whether the Illinois Bell could have gone anywhere, or anyone could go anywhere, and put money out on as favorable conditions as the conditions under which the Illinois Bell left this money with the American Company. It just isn't done in business. When the American Telephone and Telegraph Company lends money to the associate company, the American Telephone and Telegraph Company gets 5.88. The American Telephone and Telegraph Company might get 5.88 somewhere else besides from the associate company.

As to why, if the American Telephone and Telegraph Company could get 5.88 from other sources, the Illinois Bell could not get at least 5.53 for its $10,000,000 in 1924, the

answer is that on the conditions under which the Illinois Bell wanted the money, it certainly could not get more than 4 per cent, and I don't have to prove that. You can go to any banker and ask whether he would take $11,000,000 off your hands, and pay you 5.53 for it, and have you call upon him at any hour, or any day, to pay it back.

I haven't the figures in mind as to how much it cost the Illinois Bell to get the 5.53, that is, how much the net return on that $10,000,000 to the Illinois Bell was. It can be calculated. I have never calculated it.

Picking out at random a year which is a different year than 1924, so as to illustrate the situation that is covered by Exhibit A-160, take the year 1926.

On March 10, the Illinois Bell called upon us for $1,500,000; on March 31, for $3,000,000; on June 1, for $500,000. On June 9, they had a small amount of cash available, about $250,000, and they used it to pay off some of the money they had borrowed. On June 30, they asked us for $1,000,000; July 1, $1,500,000; September 30, $1,000,000; October 1, $1,500,000. Then, on October 20, they had a little surplus cash, and they paid us off about $750,000 on the borrowings [fol. 6838] up to that time. On December 1, they borrowed $1,000,000, and on December 9, $300,000; December 18, $700,000. On December 23, they repaid us $700,000. On December 31, $1,500,000 was borrowed.

Now, the gross borrowings from the American Telephone and Telegraph Company during the year 1926 in these small amounts, constituting eight different borrowings, through the year, were $13,500,000. All those amounts they had the convenience of paying back to us through the years, and reducing their interest charge by the interest on $2,700,000. Now, in my estimated requirements, I show that their requirements were $13,500,000. What I am now stating are advances from the American Telephone and Telegraph Company to the Illinois Bell, in the year 1926.

The figures showing the transactions between the parties beginning with 1930 are rather voluminous. There is a different type of financial service entering into this year.

On January 2, we paid the Illinois Bell $9,925,825, as the second installment on stock. That is, we were paying the Illinois Bell what we, as a stockholder, owed them in connection with our subscription of stock. Instead of coming to us and borrowing money, they said: "In[illegible]

of giving you a note, we will give you a stock certificate". They made subscriptions available to all stockholders. It was an open subscription for stock to all stockholders, but we owned the very large bulk of the stock, and before they issued this stock, they had to assure themselves that the money would be forthcoming, and whether they could finance in this way or not. We didn't guarantee to buy the stock.

We do not agree to finance them under the contract. We agree to give them financial service, but the practical application of the contract is that we will assist them in every way in getting money to develop their properties. Now, the Illinois Bell had large needs for the development of its property in 1929 and 1930, and it had two choices. It could have come to us and borrowed money from us, on open account or on notes, and carried along the notes, and then issued us stock at some future time; or it could come along and say: "Instead of issuing notes [fol. 6839] here, we will issue you stock on an installment basis". From the point of view of meeting their requirements, the problem is just exactly the same, whether in our arrangements with the Illinois Bell we decided to proceed on a note basis for the time being, or whether we decided to proceed on the stock issue basis.

There is a difference between our relationship to the Illinois Bell in purchasing stock from the Illinois Bell, and that which exists in the case of the stockholders of the American Telephone and Telegraph Company, who are told that the American Telephone and Telegraph Company will need money, and they are given the right to subscribe.

The difference is that we have a contract to render service,—to serve the Illinois Bell, and we have no contract in the other relationship. The contract that appears as Plaintiff's Exhibit 7 (Rec. Vol. IV., p. 1196), is an old license contract. It is the one that was in effect in 1923. There has been a modification, or rewrite of it since; I think in 1930. But this contract, shown me by Mr. Goldman, was in effect up until 1930. And in saying that, I don't want to be understood to say that this is identically the provision in all the contracts, because I would like to check it. I think it is the same.

"Mr. Goldstein: But this is the provision in the contract with the Illinois Bell which you say distinguishes your position as an investor in the stock from that of an ordinary investor, is that right?

"A. Well, it is this plus all of the contract. The general spirit of the contract is that we render service of all kinds, of every description to the Illinois Bell in helping it give telephone service."

The section of the license contract referred to is:

"Advice and assistance in any financing required to be done by the Licensee in the extension, development or improvement of its telephone system within its said territory and in the general matter of its finances; aid in securing funds on fair terms, as and when needed for new construction and other expenditures, but not, at any time, to a greater extent than the then condition of the finances and the credit of the Licensor may permit; active assist- [fol. 6840] ance in the marketing of the Licensee's securities; and such other necessary financial support and assistance in the premises as will tend to serve the best interests of both companies."

"Mr. Goldstein: Is there anything else in the license contract that existed during the period from 1923 to 1930 which contains any obligation of the American Telephone and Telegraph Company regarding the financing service to the Illinois Bell?"

I cannot point to any other particular provision there, except the general spirit of the contract, which contains any obligation of the American Telephone and Telegraph Company regarding the financing service to the Illinois Bell. But may I call attention to the fact that even that paragraph is very broad, and there are great limits of interpretation as to what constitutes advice and assistance in financing, and what constitutes the scope of the other provisions. That provision is broad enough to comprehend financial assistance of almost any type, if you desire to interpret it that way.

The Illinois Bell would not have an enforceable right to force the American Telephone and Telegraph Company to finance it, because it says that we shall not go beyond our ability.

Turning to 1930 again, I started to state the nature of

the transactions between the Illinois Bell and the American Telephone and Telegraph Company. There are quite a few of them. On January 2, we paid the second installment on stock of $9,925,825.

We paid them, and the money was at that time, because of the peculiar tax situation in Illinois, not needed by the Illinois Bell, and was turned back— $2,200,000 of that payment was used to repay the advances that we had previously made to the Illinois Bell, and the $7,725,825 was turned back or was left with the American Telephone and Telegraph Company at interest at 6 per cent, whereas, if the Illinois Bell had taken it, it would have received, I am sure, a very much lower rate of interest.

We subscribed and paid for stock on January 2 of $9,925,825, the dividend on which is 8 per cent. The Illi- [fol. 6841] nois Bell has paid 8 per cent for some years, as far as I know. The dividend would not start to accrue on that $8,000,000 from the date of the payment. This was an installment. I think this installment carried 8 per cent. We paid an installment of $9,000,000, and it started to draw 8 per cent dividends and then, out of that installment, $7,000,000 stayed with the American Telephone and Telegraph Company on a 6 per cent basis.

In connection with that, let me say this, that this nine million was a part of a forty million stock issue which the Illinois Bell had planned to put out before the depression came along. I will take the time to clear up this picture so it is fully understood. Take the time the first installment came along: the Illinois Bell had borrowed money from the American Company, nineteen million or twenty million dollars, and when the first installment was paid, the first installment just canceled the amount of the Illinois Bell debt to us.

Now, in laying these plans, it had been fully contemplated that by the time the second installment came due, the Illinois Bell would again have borrowed from us considerable in excess of ten million dollars; but the depression came along, and when the second installment (which had been put out in a circular to all stockholders long before) came due, the Illinois Bell had no option but to accept the second installment, and it was paid, and we took it back from them at 6 per cent interest, which was a higher rate than the Illinois Bell could have obtained anywhere.

And its contract with all of its stockholders was that it would pay 8 per cent on the installments.

That was its contract with every stockholder. We did not receive any preferred treatment there at all. We got 8 per cent on that seven million which was left with us. We paid them 6 per cent, and we took their money off their hands at 6 per cent, as against their being put in a position of investing it at about 2 or 3.

I have just read a statement from the President of the Illinois Bell to the President of the American Telephone and Telegraph Company, dated November 13, 1929, handed [fol. 6842] to me by Mr. Goldstein, covering the financial requirements for the year 1930.

This corresponds to the situation as the President of the Illinois Bell saw it on November 13, 1929, but let us not overlook the fact that the Illinois Bell stock issue was planned almost a year prior to this time, and the plan to issue stock at that time, and the terms under which it would have been offered, were made long before this letter was written.

Our service in 1930, in connection with that purchase of stock in 1930, and in holding the money on hand, was, first, to have available for them nine million dollars to meet the installment; and, second, our service was in supplying them with funds at a later date through the year, after having left this nine million with us.

This money was left with us from January 15 to February 14, and it was repaid to them. Instead of paying it all in cash to them, on January 2, we actually repaid a large part of this money, between February 28 and June 30.

It is true that, while we held the money, we were getting 8 per cent in the form of dividends on our installment, and we were paying them 6, so we were making a net of 2 per cent, because the circular issued nearly a year before provided that every stockholder should receive 8 per cent on his installments, and we were doing the Illinois Bell a service,—we had every right on earth to say to the Illinois Bell on January 2, "Here is your nine million dollars. Take it, invest it as you see fit, and if you get 2 per cent, all right, it is no concern of ours." But we did them the service of taking it off their hands and giving them 6 per cent.

The American Telephone and Telegraph Company sold probably a billion of stock during this period from 1923 to 1930. And when it sold that stock, it gave its stockholders

the right to subscribe in installments. When it gave its stockholders the right to purchase on installments, it gave what it agreed to give them at the time the circular was issued; it gave them some years—I think in the earlier [fol. 6843] installments it paid 8 per cent. In the later ones it got the installments down, I think, to 6.

In 1930, we got the installments down to about 5 per cent. But keep in mind in that connection that we had over $250,000,000 from those stock issues that we took in and held for these companies.

I never heard of an American Telephone and Telegraph Company stockholder coming to us and taking it off our hands, and carrying it until we needed that money, at a 5 per cent or a 6 per cent rate of interest.

When the American Telephone and Telegraph Company, as a stockholder, is ready to pay its money, and the Illinois Bell takes it and says, "We will take it, but we don't need it," and the American Telephone and Telegraph Company retains the money, I think anyone would consider that that is a service which the American Telephone and Telegraph Company as a stockholder renders the Illinois Bell, and I believe it is. I do not consider it the same kind of service as when the stockholders of the American Telephone and Telegraph Company turn over installments to the American Telephone and Telegraph Company.

It could not be a service to the American Telephone and Telegraph Company to be able to hold that money until the Illinois Bell actually needs it, rather than to pay it at the time of the installment. It couldn't, under any possible way of looking at it, be a service, because, if it is left with us, we would probably have to take 3 or 4 per cent on it, and we would lose money on it.

One of the factors in the value of that service that I mentioned is the difference between what the American Telephone and Telegraph Company paid the Illinois Bell on the installment, and what the Illinois Bell could get if it put this money out. The other factor is the general over-all convenience that enters into the picture there, having this easy working arrangement for the Illinois Bell.

If the Illinois Bell had put the money out on call in some of the banks lately, I imagine they couldn't get it back at any time.

[fol. 6844] In the year 1929-1930, they could not put the money out on call, and get the same convenience that they

got from the American Telephone and Telegraph Company. Call money could be called any time, but call money was only a brief factor in the picture.

If the Illinois Bell put the money with the American Company, it was sure to get it back, because the American Company would handle it in a most conservative way, get it into Government bonds and into certificates, where they would be sure that all of this surplus money would be protected. The Illinois Bell could buy those same bonds and certificates that the American Telephone and Telegraph Company bought and it could suffer the same loss that the American Telephone and Telegraph Company suffered.

The loss I referred to is the difference between what the American Telephone and Telegraph Company paid the Illinois Bell, and what the American Telephone and Telegraph Company got. That would not necessarily be the measure of the value. I said that would be one factor. There would be many other factors in this financial arrangement.

Another factor was the ease and promptness with which the Illinois Bell could get the money available without having any responsibility for it at all in Illinois. It just simply hands it over to the American Company, gets a good rate of return on it, and when it needs it, calls up on the telephone or writes a letter and says, "Send us back $500,000 or $1,000,000."

Cross-examination (continued).

By Mr. Goldstein.

May 20, 1932.

I was present in the court room when Dr. Jewett testified. I recall the questions and the answers of Dr. Jewett in discussing the development and research expenses, and the allocations to the Chicago area. I recall his stating that he did not consider that any portion of the development and research expense is allocable to special commercial products, for the reason that he would not know [fol. 6845] how to make such an allocation and because, to whatever extent the benefits of the research and development work of the American Company are found in the special commercial products, those values have been paid for in ways other than by an allocation of the credit for

expense of development and research through the payment of royalties.

The American Telephone and Telegraph Company receives royalties on special commercial products. We have, I think, a statement showing the royalties received by the American Telephone and Telegraph Company. I will find it in just a minute.

(A sheet which Mr. Goldstein stated was sent to defendants covering the royalties for the year 1931 was thereupon marked Defendants' Exhibit D-110 for identification.)

That statement, Exhibit D-110, looks as if it were prepared in my office. I presume it is correct, but I would like to check it.

I now have here the sheet for the years 1923 to 1931, inclusive, showing the royalties received from the Western Electric Company and Electrical Research Products. That is not the sheet that I sent defendants last fall.

(Sheet produced by Mr. Heiss marked Defendants' Exhibit D-111 for identification.)

This is a new sheet that I prepared. This sheet represents a statement of all royalties received by the American Telephone and Telegraph Company from every source.

Exhibit D-111 is a statement of the royalties received from the Western Electric Company, Incorporated, the Electrical Research Products, and others received by the American Telephone and Telegraph Company. I gave no credit in any of my allocations to the receipt of these royalties by the American Telephone and Telegraph Company. I do not know that there is a contract in existence governing those royalties which were received from the Electrical Research Products and paid to the American Telephone and Telegraph Company. There is an arrangement existing [fol. 6846] between the companies, but I do not believe it is embodied in the form of a contract. It is probably just an informal advice, or letter form. There are probably a number of such letters that show the arrangements. I think the arrangements between the American Company and Electrical Research Products is that the Electrical Research Products Company is authorized to use a certain idea or patent for which the American Company will receive a stipulated royalty payment. Now that arrangement in some cases is through the Western Electric Company; in fact I

think that in most cases, I think in all cases the arrangement for the definite release of the use of the patents, and these ideas used in the non-telephone filed, is made with the Western Electric Company, because the Western Electric Company is the owner of the Electrical Research Products Company stock.

Part of the legal expenses was the cost to the American Telephone and Telegraph Company of purchasing patents outside of the Bell System.

When the American Telephone and Telegraph Company buys patents from outsiders, and the Western Electric Company gets the license to use them, the accounting practice is briefly this: if the American Telephone and Telegraph Company buys a patent on the outside, consideration is given as to the character of the patent. If it is something, if it is a patent that the American Telephone and Telegraph Company should own itself, and the Western Electric is licensed under the patent—that is, if it is a patent that goes to the Western Electric Company, or should go to the Western, something pertaining to apparatus or appliances, the Western is billed with the cost of acquiring that patent, and is given a license under it, and that license—or that license payment, rather, has been credited by me against our expenses, excepting in the case of a few small payments which were made in the years 1925, 1927, 1928, 1929 and 1930 that were shown on this statement, which we did not credit back against the license—our expenses, because of the difficulty of segregating between accounts.

[fol. 6847] But ordinarily, it is our practice to credit back to the expenses of the American Company any amounts that the Western pays us for the patents. If the American Telephone and Telegraph Company paid $250,000 for a patent, from some source outside of the Bell System, and the Western Electric Company received a license to use that patent, the Western Electric Company would pay for the cost of acquiring—for the cost incurred by the American Company in acquiring the patent. That would reimburse the American Company, and the amount would be credited against the account which included the original payment by the American Company and it would be taken out of my accounts.

"Mr. Goldstein: We will identify as Defendants' Exhibit D-112, a copy of the option agreement which was sent to us

by Mr. Bracelen, dated July 8, 1919, between the International Telephone Sales and Engineering Corporation, and the American Telephone and Telegraph Company.

(The document was thereupon marked Defendants' Exhibit D-112 for identification.)

I think I have seen the document before, but I have no recollection of anything ever arising in my accounting work which required my referring to that document. If at the expiration of this option one was given the Western Electric by the International Telephone Sales and Engineering Corporation, I had no knowledge of it.

In 1927, the American Telephone and Telegraph Company received a dividend of approximately $48,000,000 from the Western Electric Company. I did not give credit anywhere in my computations to the license contract, of any portion of that dividend that was received by the American Telephone and Telegraph Company. There was no occasion to do so. There was no reason why I should do so.

I prepared the summary, Compilation of Costs Incurred in rendering license contract services, and amounts thereof allocated to the Chicago area, as shown in Exhibits A-103, A-108, A-117, A-124, A-152 to A-162, and A-164 to A-169, inclusive, which was handed to defendants yesterday.

[fol. 6848] "Mr. Goldstein: May I ask if that will be offered as a plaintiff's exhibit?

"Mr. Blackman: For Mr. Goldstein's benefit, we will offer it now."

(The document was thereupon received in evidence, marked Plaintiff's Exhibit A-170.)

In Exhibit A-170 for the whole company I show, Cost of Temporary Financing, $1,535,913, in 1923, and no portion of it is allocated to Chicago.

I consider the service of temporary financing to be part of the services under the license contract so far as the American Telephone and Telegraph Company is concerned. I have endeavored here to present a statement of the costs of rendering license contract service, to the American Company, and under those costs, costs of temporary financing, are distinct costs.

I have in other cases considered the service of temporary financing and the cost of temporary financing in connection

with our license contract services in an allocation to other licensee companies.

I prepared City's Exhibit 142, and City's Exhibit 142-A. I show in City's Exhibit 142 that the loans which we made to the Illinois Bell in 1926, were approximately $6,000,000. Those were loans made to the Illinois Bell Company. The average stated on this sheet is a quarterly average, divided by four, and the amounts to which I testified yesterday were the detailed amounts from month to month.

I did not include the losses on these particular loans, as a part of the cost to the Chicago area because I personally did not feel they should be so allocated, and on advice of counsel, that matter was left out.

According to City's Exhibit 142-A, the Indiana Bell Telephone Company 1923 license payment was $363,065.37.

We had average loans outstanding during 1923 of $16,427,375 to the Indiana Bell, but it was an accumulation of a number of years.

[fol. 6849] I did not compute the losses to the American Telephone and Telegraph Company by having outstanding the $16,427,000 of loans at 5.88, nor compute from that how much was left of the license payment of the Indiana Bell Company to pay for any other services. I did not relate the matter at all to the license payment, because the license payment is a payment made for a blanket of services, and the character of the services rendered under that arrangement differs from year to year. One year the company might take a large amount of Operation and Engineering assistance, and another year might take considerable accounting assistance, and another year it might be financial. There is no attempt to relate the particular cost of any particular activity to the revenue paid for the year. But I did figure my loss on the $16,000,000, because the money cost me more than 5.88, cost the American Company more than 5.88, and if it was out at 5.88 and cost us more, why, it is just a plain and simple proposition, that we incurred a loss on it.

"Q. If you incurred a loss on holding funds to make temporary loans and included that in the license contract, why did you not include as a charge against the license contract the losses that you make after you have the loans outstanding?

"A. Because the situation is entirely different."

"The loss on holding funds available is the loss on money

which we hold in New York subject to call, and the loss on temporary financing is the loss which we incur on money that has left the possession of the American Company, and has gone to the associate companies, and is probably invested in the property of the associate companies."

"Q. That is your theory, as I get it, is that losses are chargeable before the American Telephone and Telegraph turns over the money to the Indiana Bell, but after it turns it over, then the loss is not according to the license contract, is that it?

"A. Well, I just felt that I did not want to put it in here."

In the interest of conservation, I did not want to put it into the Chicago area, but I still maintain that it is a definite loss on the part of the American Company. [fol. 6850] The license contract provisions with reference to advice and assistance in financing, are the same for all of the licensee companies.

I stated and still state that the service which justified setting up a charge against the licensee payment from the Chicago area for holding funds available, was that we were holding the funds so that the Illinois Bell could receive aid from us to meet its requirements, and give us either stock, or whatever security was agreed upon. That same sort of service was applicable to the other licensees as well.

When we turned over the money to the Illinois Bell, or to any licensee, it did not make any difference to us whether we received a note for it or had it on an open account, or received stock, just so that we have something to evidence the fact that we have passed money out. Of course, there is this, there is a real difference; when we loan money on notes, or on open account we are in a creditor position, as against the companies. When we take stock we enter into an investor's relationship, with all of the obligations or all of the contingencies I should rather say that go with stock; but when we loan money, we take notes, or an open account, and that comes ahead of the stock. We are in a better position.

"Q. You own either 100 per cent of the stock or 99 per cent of the stock of practically all your licensee companies, is that correct?

"A. Oh, no! Oh, no!"

We have the same arrangement with the New England Companies where we own, not much more than 60 per cent, and in the Southern New England Company, where we own about 30 odd per cent, and in Cincinnati, where we own about 30 per cent, and with the Pacific Coast Company, not over an 80 per cent control; so that the same arrangement applies to all of the companies that have the license contract, whether we control them or not.

Looking at Section 212-A of the Annual Report of the American Telephone & Telegraph Company to the Interstate Commerce Commission, you will read in the first one [fol. 6851] there, the New England Company—that is a licensee company, and that is 57.95 per cent owned. Take the Ohio Bell common, and you will see 100 per cent, and 59 preferred. Of the Mountain States Telephone & Telegraph Company we own 72.8 per cent.

In 1923 we had 99 per cent ownership in the Indiana Bell, and we had $12,081,022 book value investment in stock in the Indiana Bell. We received no dividend on that investment for that year, and that was one of the contingencies that I referred to here a while ago. In that same year we had with the Indiana Bell, $16,427,000 in loans accumulated over a number of years.

We had in the Indiana Bell in 1923—this is shown on City's Exhibit 142-D that I sent defendants—in Indiana we had 7 per cent 3 years' time notes in 1923, paid in 1925. They were the notes that the Indiana Company issued at the time it bought the major part of its property, and that is included in the exhibit I sent defendants—7 per cent.

Now there may have been—I am not certain without referring to my records, but there may have been some 6 per cent money also, but I know that there was a considerable volume of 7 per cent money to the Indiana Bell in that period, and up to 1925. In the same year we had $23,498,945 investment on which we were receiving 1 per cent dividend from the Ohio Bell, that was all that it could afford to pay under the rates that it received. Now in that same year we had $9,530,000 of notes, of the Ohio Bell. That money was on a 6 per cent less 2 per cent, basis.

We charged as a part of the cost of license contract services the difference between what we received on moneys held available for the licensees, and our cost of the funds. The American Telephone & Telegraph Company loaned money to the Indiana Bell, for instance, and was paid 5.5

for that money. And the cost of the funds in that particular year we will say was 6.87.

I charged up as a part of the cost of the license contract service the difference between the 5.88 and the 6.87, in figuring the costs of the American Company, the total cost to the [fol. 6852] American Company, but none of it was allocated to the Chicago area. I have allocated it against the other licensees' payments in other cases. I did in other computations that I made; I included the cost of temporary financing, but as one grows older, one gives further consideration to things, and has the right to change his mind. I did that in Ohio in 1931 and I have changed my mind since as to the allocation. I did it in 1929 and 1930 in Michigan.

"Q. And when you did that you found there were no moneys left from the licensee payments to pay for any service, is that correct?

"A. I did not make that check at all.

"Q. You don't know whether, do you?

"A. I never took occasion to inform myself as to that fact. It would mean nothing to me if I did.

"Q. What caused you to change your mind, Mr. Heiss?

"A. What caused me to change my mind?

"Q. Yes, as to whether it is proper to put it in or not.

"A. It was in the interest of presenting the most conservative statement of allocation of cost to the Chicago area, that I could present. I can put it in if you want it put in, but I felt that in the interest of conservatism, I should not put it in."

I never made a comparison between the amounts available from license payments for the particular services for which we charged the Illinois Bell, in the case of the Illinois Bell and the other licensees.

If you are referring to specific costs for any particular services, of course, I was curious enough in this case to see what cost we had allocated to the Illinois Bell, and what we had received from it, just as a matter of curiosity.

"Q. If you found that this loss on loans and loss on stock absorbed all the license payment, would you consider your allocations fair, in which you charged the Chicago area a portion of your costs when there was nothing left from the other company?

"A. Mr. Goldstein, it would not have entered into my [fol. 6853] consideration at all. I would have stated the

facts of cost as I found them and let the chips fall where they may.

"Q. All right.

"A. With regard to the comparison of revenue."

Referring to Exhibit A-169, I use as a basis of allocation a combined or composite ratio of estimated requirements plus Plant Investment and Gross Additions.

The sources of the estimated requirements were C. R. 13, which we furnished to your people for inspection and I think they were in defendants' possession for quite a long time. C. R. 13 is a compilation made by the American Telephone & Telegraph Company, by my department.

"Mr. Goldstein: I will ask to have identified as Defendants' Exhibit D-113, C. R. 13 reports for each of the years 1923 to 1931, inclusive."

(The documents were thereupon marked Defendants' Exhibit 113-D, collectively, for identification.)

"Mr. Goldstein: We will also identify as Defendants' Exhibit D-114, the C. R. 13 reports for 1920 to 1922."

(The documents were thereupon marked Defendants' Exhibit D-114, collectively, for identification.)

As to the sources of the information on C. R. 13—I might say first, C. R. 13 is nothing more than a tabulation which I make up each year for my internal purpose, to take the record of my performance under the authority given to me by the Board of Directors and the Executive Committee to make advances; and this is merely a record, now, of what I am authorized to advance, and what I advanced, and then the statement C. R. 13 varies from year to year, depending upon my point of view as to what I want to show throughout the years in question. C. R. 13 is not entirely uniform in its preparation. At the end I finally come to the point of net cash advanced. Now I think that explanation is necessary to show the character of the document.

The figures in C. R. 13 are based on the provisional estimates received from the various companies which we finance. The estimated requirements shown in C. R. 13 would [fol. 6854] be in the first column. In the first column there generally is a compilation, a summary compilation of the provisional estimates received from each of the licensee companies.

We receive provisional estimates from the companies,

that show their requirements, and we check that figure, and then the amount of a company's requirements is first submitted to the Board of the Executive Committee for approval, and if the Board or the Executive Committee approves it, then I put the amount in the first column. Generally it is the same amount as appears in the provisional estimates. But, now, take this year 1923. The first column of C. R. 13 shows $139,928 as the total amounts which the Board or executive Committee have authorized me to advance to the companies, but as the year went on there was given to me an additional $28,350,000 authority.

To determine whether the figures which I used as a basis for my allocation in Exhibit A-169—it would not be necessary to get the provisional estimates of each of the licensee companies in order to determine whether these figures in C. R. 13 are correct. One can work from C. R. 13 with very substantial accuracy. That C. R. 13 computation represents the estimated requirements of the companies after they have gone through the scrutiny of the American Company, is correct. The starting point is the original estimates. But, C. R. 13 is a sufficient compilation of those, and that has been in defendants' possession.

Each licensee company sends a provisional estimate in the same form as we discussed yesterday, which is the starting point, in giving its estimated requirements, as they see them. We review them, but it is very seldom that we make any changes unless there are obviously miscellaneous items of financing and so forth that should be handled—that might be handled on some other and better basis. So that we might change the amount of the estimated requirements slightly, but generally it is the amount of the provisional estimate. My department and others in the company review it, and it finally terminates in an authorization by the [fol. 6855] executive committee. And those are the amounts that are stated in C. R. 13.

The next item which I use, as the basis for allocation, is Plant Investment. That was taken from C. R. 64-A for the associate companies, which as I understand was available to defendants; and taken from Long Lines monthly report 6—Illinois Bell Telephone Company Monthly Report 6, and for the Chicago area monthly report 6. All of which I understand defendants have available.

The figures in C. R. 64-A are a tabulation of the monthly reports of the companies. They are the monthly reports

that contain the corresponding data in C. R.—or monthly report 6 I think. I can say with sufficient accuracy that C. R. 64-A is taken from monthly reports No. 6 of the companies.

The gross additions were taken from the identical records that I used in getting Plant Investment, M. R. 6, and C. R. 64-A.

I used a composite figure of the Estimated Requirements, Plant Investment and Gross Additions, for the reason that they give three different pictures of the use to which money held available is sooner or later applied. For instance, the estimated requirements measure the picture, the general picture presented to us by the companies. Plant Investment gives you the size of the plant, and indirectly reflects something of the need of the money.

The Gross Additions in any year give you the gross construction activity going on in the company, which is another indication, general indication of the money requirements; so I felt that by compositing the three, I would bring into the percentage a rather broad range of information in measuring this factor of holding funds available.

The estimated requirements are for future construction and this money is for future additions. The Plant Investment is the result of the moneys that were gotten over a long period of years. I said that simply showed the size of the property.

[fol. 6856] "Q. You have a definite determination of the estimated requirements, is that correct?

"A. The size of the home determines the size of the running expenses.

"Q. But you are using this money not for running expenses; you are using it for gross additions?

"A. Yes, and the size of the home would determine the amount you might spend putting additions to it, if you were a growing family.

"Q. But you are not speculating as to the amount required. You have their estimated requirements, you have them definitely determined, have you not?

"A. I have.

"Q. So having definitely determined how much they need, why did you include the plant investment, which represents accumulation of the past?"

I felt that a composite of the three in my judgment was

a better picture than taking estimated requirements alone. The more factors that you bring into the picture, the better, or the more fair—the better and fairer judgment you can reach. That is the only reason for including Plant Investment.

I did not take into account the possible fact that the Illinois Bell had very small estimated requirements, and a large plant as compared to other companies that had small investments and large requirements. It never entered into my accounting, in making the allocation. And I would use the same allocation anywhere, in any other company.

The money that is held available by the American Telephone and Telegraph Company is generally for Additions to Plant. The materials for additions to plant come practically or entirely from the Western Electric Company purchases. Some of the installation comes from the Western Electric. The labor element is quite large. A large part of the money which the licensee companies, including the Chicago Company, need, is for buying materials and installation.

The Western Electric Company is one of the creditors.

[fol. 6857] "Q. And so, as they draw it down—so that the Western Company knows in advance, doesn't it, each year, as to the purchasers of the Western Electric Company, that they will have the money available for the merchandise purchased, is that correct?"

Well, I suppose, based on past experience, the Western Electric can say that its bills have always been paid, and they will be paid in the future. The Western Electric Company, as anybody else might have, has the knowledge that the American Telephone and Telegraph Company is holding this money available for the licensees. The Western Electric does not have any more access to my books than anybody else. No officials of the American Telephone and Telegraph Company are on the Board of Directors of the Western Electric Company. There are not any common directors to my knowledge. There is no exchange of information between the two companies, in the sense of their giving us information, in exchange for what they get from us. After we get up the provisional estimate requirements at the end of any one year, we may advise, the Western

Electric Company as to what the possible needs of different types of plant are for the companies for the following year, but that is simply so that the Western Electric can better serve the associated companies. Then of course the other way, from the Western Electric to us, there are certain limited reports that we get about what is going on in the Western Electric business, but beyond that there is no exchange of information.

The American Telephone and Telegraph Company owns 98 per cent of stock of the Western Electric Company. We furnished the Western Electric Company with data as to the physical units of property, but it would be of no interest to the Western Electric Company at all to know whether the Illinois Bell needed ten million dollars from us or twenty million dollars.

"Q. But would it be of interest to the Western Electric Company to know that the Illinois Bell needed ten million [fol. 6858] dollars of purchases from the Western Electric Company, and had arranged to secure the ten million dollars.

"A. No, sir."

In all of my experience as comptroller, the Western Electric Company has never asked me for, nor have I furnished to them, to my knowledge, the financial requirements of any company in the System for the year—the year ahead, or for the current year. What we give the Western Electric Company is information as to the physical units which they furnish. The money end is our concern; that is our relationship with the associated companies.

I imagine the Western Electric Company would know of the practice of the American Telephone and Telegraph Company to furnish the funds necessary for the Illinois Bell to purchase from the Western Electric Company. If they did not, I should say, that it would be rather strange, after years of association with us.

There is no occasion to reflect, in my calculations, the benefits, if any, to the Western Electric Company due to the fact that the American Telephone and Telegraph Company at the beginning of each year provides all of the money necessary for the customers of the Western Electric Company to pay their bills to the Western Electric Company during the year because anything that we do,

that helps the Western Electric Company, to the extent of 95 per cent flows right back into the associated companies, as a benefit to them in lower prices, in a better building, a finer, better building of the local plants. Any benefits that may flow out from the Western Electric Company come right back again into the associated companies.

I am in charge of the accounting department. And as such, I know the accounting psocedure in placing on the books of the associated companies, the purchases of plant.

When the associated company, an associated company buys material from the Western Electric Company, it may either put it into Materials and Supplies Account, or directly into its Plant Account, depending on whether it is [fol. 6859] immediately installed or not. Ultimately they come into plant account.

If the Western Electric Company benefits from any information which it gets from the American Company, whether we give it direct, or whether it picks it up indirectly, it goes to help the Western Electric Company do a more efficient job, and to the extent that the Western Electric Company can do an efficient job, a more efficient job, it is reflected in the prices, in all of the prices, and in all of the relationships with the associated companies.

I have allocated against the Illinois Bell—the Chicago area proportion for holding those funds around $150,000 per year. The license payments which cover these charges are treated as an operating expense.

As to any saving to the Illinois Bell by having the Western Electric prices lower as a result of this relationship between the American Telephone and Telegraph Company, providing money and the Illinois Bell having the money available to pay the Western Electric Company, so that the Western Electric Company has no credit risk, I cannot in the first place pick out in any great minute detail, the benefits, the material benefits that the Western Electric gets. I know that there is a benefit there, and we assume it does go to the Western Electric Company. The benefit then goes back—and much of that benefit goes right directly into the operating expenses, and even if it does go into capital account, in a very short period of time, all capital accounts find their way into the operating expenses, so that over a period of years every dollar of benefit that the Western Electric Company would get, or that would pass through the Western back to associated companies, comes

right back home into the operating expense of the associated companies. It is just a question of time until it gets there.

Referring to the quotation from the license contract which says that the American Telephone and Telegraph Company is to give financial support and assistance as will tend to serve the best interests of both companies, I cannot [fol. 6860] appraise the portion of the benefit which flows to the American Telephone and Telegraph Company. I do not know as I could appraise that at all. I do not know what the benefit—what benefits there would be. As I understand the situation, the thing we do is something that flows out, flows out to help the companies.

It is true that the American Telephone and Telegraph Company had an investment in the Illinois Bell in 1930 of $154,000,000. But I would not say that the American Telephone and Telegraph Company's investment in the stock of the Illinois Bell of $154,000,000 get any measurable benefit whatsoever because of this relationship, and the assistance which the American Telephone and Telegraph Company gives to the Illinois Bell.

We own the stocks of the Illinois Bell as any other investor would, as any other investor would own any other stocks, and I have never yet heard of any owner of stocks being so generous as to take a part of what is a reasonable earning on his stock, and turning it back to the company to meet its expenses.

Now, we hold our stock, we hold this stock as an investment; we get the same dividend on it that any investor in Illinois Bell stock gets, and there can be no allocation of the license contract expenses to the American Company as I see it, except such as we have taken out in the 5 per cent.

I have never heard an interpretation placed upon nor have I interpreted the language "the best interests of both of the companies," in so far as the American Telephone and Telegraph Company is concerned, because as I look upon the license contract, it is one of the services to the associate companies. And in all of my experience as comptroller, I have never heard any interpretation put on that, that any consideration should be given to the thought that when we do this financing, we should also look out for our own interests, except such interests as any prudent investor, or any prudent banker—such care as he would give to

his own interests, to see that his investment was a proper one, properly secured, properly safeguarded.

[fol. 6861] And in determining what would be a fair allocation to the Chicago area, I did give some thought as to what would be fair under the express provisions of that contract. And in connection with that, I did also take into account the express provision which says that the financing should be for the best interests of both companies. I gave it such weight as I thought should be given to it. I did not use any yardstick, such as the investment that the American Telephone and Telegraph Company had in the Illinois Bell, as a measure of the benefit because I did not feel that the whole relationship justified anything of that type.

The primary activities of the American Telephone and Telegraph Company taken as a whole are three. One is the operation of its Long Lines. That has been taken out in my allocation. The Long Lines expenses, and assets and everything have been excluded. The second activity is the license contract—is to render service to the companies under the license contract arrangement. And the third activity is simply the miscellaneous—minor miscellaneous activities that we may carry on, which is reflected by the very first diagram I think that Mr. Blackman introduced in the case. That is also reflected by the elimination which I have made in this case. That is my picture of the American Telephone and Telegraph Company.

"Judge Wilkerson: Is it a fair statement of the situation to say that it is a holding company with some activities of its own?

"A. In one sense you might say that the American Telephone and Telegraph Company is a holding company, but your Honor, I would say that the American Company is not in the usual sense a holding company."

It differs from the companies that are ordinarily spoken of as holding companies in this respect, that a company organized to be purely a holding company, buys and sells securities with the idea of making a profit on those securities, that is, finally getting something more out than was put in. Now, the American Company has never bought securities of its associated companies from that point of [fol. 6862] view. If you go back to the very beginning of

the license contract arrangement, the financial assistance to the companies grew up along with the research work.

"Judge Wilkerson: I just wanted to find out whether this was a peculiar kind of company, which was called a holding company, or whether it was a company that had dominance over a large number of subsidiary corporations, but carried on some activities in its own name and on its own account.

"Mr. Blackman: In a very broad sense of course it is a holding company. It holds the stocks of these companies.

"Judge Wilkerson: I am not using it in any limited sense, as meaning that it speculated in the stocks, buying and selling. It buys for the purpose of controlling operations, or in relation to the operations of other property, but instead of actually taking title to the property, it permits the title to remain in the underlying companies.

"Now, as to the underlying companies it controls those through its stock ownership, and it carries on business of its own of course, in its own name, with its own corporate organization.

"Mr. Blackman: Yes, sir, that is all perfectly true, but what Mr. Heiss had in mind, I think, is quite an important distinction in this sense, that this company did not go out to acquire the stocks of these other companies, to become a holding company. What it did in the first instance was to own and control patents, and in the early days it licensed companies throughout the United States to operate under those patents. Then from time to time it took interests in those companies, usually minority interests. The companies that it was licensing got into financial difficulties and it loaned them money, and in that way its interest grew and grew until in most of the companies its interest has grown to a majority and in some a 100% interest.

In the case of the Canadian Company, it owns something like 26 per cent; and in the case of the Southern New England and the Cincinnati Companies it owns minority interests. In most of the companies its interest has grown to a majority.

"Judge Wilkerson: That is to say, instead of starting [fol. 6863] out with a definite intention of doing this thing, by a process of evolution it grew into it.

"The Witness: Through all of this period the American Company has never traded in the stocks of these compa-

nies. It has taken them in, and held them, and accumulated them, and it has held them, in my opinion, as the credit pool which furnishes the possibiilty of the American Company going out and getting the money that is needed to finance these companies."

The total investment of the American Telephone and Telegraph Company in stocks of associate companies as of December 31, 1931 was $1,939,270,421.51.

The capital stock of the American Telephone and Telegraph Company increased from $719,000,000 at the end of 1923 to $1,841,000,000, in 1931. That is the average for the year. That will not agree of course with the December 31 figure.

The dividends paid to the American Telephone and Telegraph Company on its investment in the licensee companies, in practically every case, at least since 1926, have not been on an 8 per cent dividend rate. Take the period 1923 to 1931, a number of the companies paid 8 per cent, but Mr. Goldstein called my attention to one that was only 1 per cent. The dividend rate of the Illinois Bell to the best of my knowledge *it* was 8 per cent during the period.

The investment of the American Telephone and Telegraph Company in the Illinois Bell at the end of 1923, that is the stocks owned in the Illinois Bell, was $74,335,134. That amount includes a few installments. Now, in addition to that, I do not think there was anything more than that, at the end of 1923. At the end of 1931 our investment, book value, was $154,212,653. That was an increase of about $70,000,000. That seventy odd million dollars was invested from 1923 to 1931 and there was a dividend rate paid of 8 per cent. The Illinois Bell earned its dividend each year according to my understanding.

"Q. Now, your cost of funds from 1923 to 1931 was—in 1923 was 6.87; 1924, 6.85; 1925, 6.93; 1926, 6.83; 1927, [fol. 6864] 6.86; 1928, 6.55; 1929, 6.53; 1930, 6.25 and in 1931, 6.42, as shown on A-64; so that the cost of funds to the American Telephone and Telegraph Company was going down from 1923 to 1931. It put its money into the Illinois Bell and received 8 per cent on that money. Do you consider that as part of the activities of the A. T. & T. to make money on its investment in the Illinois Bell?

"A. I have said, Mr. Goldstein, that so far as the A. T. & T. Co. investment in the Illinois Bell is concerned, it is

just the same—in stock, it is just the same as any other investment, and the American Company is entitled to its dividend."

It is entitled to its dividend the same as any other investor.

It is entitled to its return, just as any other investor is entitled to his return, and the investment, the stock ownership feature, should be entirely segregated from this question of funds held available, and temporary financing. Now, in arriving at our cost of the money, the average cost of the money, that simply says what every dollar in the business of the American Company during those years cost us, and the dollars are not tagged. Every dollar cost us this amount of money, and if we held money available for the Illinois Bell, those dollars cost us on the average the same amount as any other dollar, and if there was temporary financing those dollars cost us the same amount of money as any other money.

One of the activities of the American Telephone and Telegraph Company which was considered by me was Long Lines. I have taken that out. The second activity which I have taken into account is license contract activity to serve the licensees. And the third activity which I have taken into account is whatever miscellaneous things we do.

The investor relationship of the American Telephone and Telegraph Company can be included in the third group, the miscellaneous, but divided into two parts. All we have to do as regards that third group is to see that our investment in stocks is so much, our dividends are so much, and those are the same dividends that anybody else receives. Now, the cost of holding those stocks, and the [fol. 6865] cost of the custodianship of them, is a pleasure rather than a burden.

"Q. Well, now, having stated that there was the interest of the A. T. & T. as the investor, would you interpret that sub-section D as to financing, which says that it shall serve both interests of the company, to include the interest of the A. T. & T. as the investor?

"A. I don't believe that should be considered in my license contract computations at all.

"Q. No, I didn't ask you that. I asked you whether, in the interpretation of that sub-section D of the license contract, which says that the financing shall be for the best

interests of both companies, that you should take into account that the interest of the A. T. & T. is the interest of the A. T. & T. as an investor?

"A. So far as the interests of the A. T. & T. are concerned, the interests would be such as any prudent person would exercise in making an investment."

The American Telephone and Telegraph Company takes that into account in carrying out that sub-section-D. It would be foolish if it didn't give some consideration, when it advanced money to the Illinois Bell, that there was going to be a return, because the American Company has the responsibility for upwards of seven hundred or eight hundred thousand investors in the business.

In my allocations I did not take anything out of the cost of service to take care of the interests of the American Telephone and Telegraph Company. From what I have said, there was no occasion to take it out, except the amounts of 5 per cent, and so on, that we take out in our deductions.

In arriving at the 5 per cent I did not take into account the amount of the investment in stocks of the American Telephone and Telegraph Company on the one side and the plant or whatever the investment of the Illinois Bell was.

I took into consideration the fact that there might be some little consideration given to the corporate activity [fol. 6866] that was necessary, expenditure by the American Company in connection with the corporate meetings of the Illinois Bell and other companies in which it held stock, just the same kind of expense that I would incur if I were an investor in United States Steel, and wanted to see that my interests were safeguarded. I did not use the number of dollars of investments of the American Telephone and Telegraph Company as a yardstick in determining the 5 per cent separation.

I charged as part of the license contract costs the fees paid to the Directors of the American Telephone and Telegraph Company when they met, because they deal to the extent of 95 per cent of their activity with license contract activities.

"Judge Wilkerson: How much was that fee?

"Mr. Goldstein: It is $24,000 in 1923, $29,000 in 1924; $33,000 in 1925; $32,000 in 1926; and $31,000 in 1927; $32,000 in 1928, $52,000 in 1929 and $49,000 in 1930."

"The Witness: You take into consideration there that there are twenty members of the Board, or nineteen. A number of those men are members of the Executive Committee, meet every week or two weeks.

"Mr. Goldstein: Pardon me, that is the same Executive Committee whose records you refused to show us, is that correct?

"A. Yes, sir."

Now that Executive Committee meets quite frequently, and the Directors meet at least once a month, and if a man takes responsibility for a concern as large as the American Company, I don't think there should be any question if he receives as much as twelve hundred dollars a year, or some average figure of that type.

I also charged against the license contract the annual reports of the American Telephone and Telegraph Company because the business of the American Telephone and Telegraph Company, after you take out the Long Lines, is almost entirely license contract. They didn't send out those reports, as incident to their acquiring or holding stocks. The people throughout the United States, the As-
[fol. 6867] sociates are interested in those reports.

I have Exhibit A-155. Those are the expenses of the Comptroller's Department. One of the functions of the Comptroller's Department is to get up forms of reports for the licensee companies. That includes the forms of reports that are to be sent to the American Telephone and Telegraph Company by the licensee companies. Those forms of reports that are sent to each of the licensee companies have instructions accompanying them as to how they should be filled out. Part of our function is to advise the companies how to fill out these reports. Not all of the reports carry instructions, because it is self evident what they are. The reports are sent back to the American Telephone and Telegraph Company. When they are sent back, they are sent back in my department. My department studies them and distributes them to other departments that need them, and it combines them so as to get an over-all picture.

Included in those reports, the forms of which we have sent to the licensee companies, and which we get back in completed form, are, as I recall it, report M R 1, M R 1-A, M R 2, M R 3, M R 4, M R 5, M R 7, 21, 22-A, 22-C, 23 and analysis number 10.

The provisional estimates are also of the same character. That is, we prepare the form and send out the instructions and we get them back, and we study them, and we compile reports from them.

The reports which my department compiles from these M R reports specifically mentioned, include C R-52, 53, 53-A, 54, 54-A, 67, 67-A, 67-B, 76, 86, 91 and 97. There are various forms of presentation.

"Q. And those are the M R reports and the C R reports, access to which has been refused to the defendants, is that correct?

"Mr. Blackman: Now, I think I can state that as well as the witness, perhaps a little better.

"Mr. Goldstein: All right. Let's state the facts.

"Mr. Blackman: Of course, the work which the witness [fol. 6868] and his department do with regard to these reports and compiling, is relevant to this case, and if the defendants want to seriously question that work, why, of course, that may be an issue which they have the right to raise, and in order to permit them to raise that we have given them the forms of all of these reports. So far as these reports are concerned, the forms have all been submitted to them, and they are fully familiar with them. Now, the particular figures which have been written in for each of these companies have no bearing on the amount of work of the Comptroller's Department.

"Mr. Goldstein: Is it up to the Comptroller's department to compile those figures and put them in the report?

"Mr. Blackman: Of course it is.

"Mr. Goldstein: Is that of benefit to the licensee?

"Mr. Blackman: Why, yes.

"Mr. Goldstein: If it is, we have a right to see what they are.

"Mr. Blackman: That is where I differ with my learned friend.

"Mr. Goldstein: If the information on those reports is a part of the service rendered under the license contract, we have a right to see the nature of that work.

"Judge Wilkerson: Was that one of the matters taken up on the motions?

"Mr. Blackman: Yes, sir; and which this Court denied.

"Mr. Goldstein: Right. And we, therefore, will challenge the expenses of Exhibit A-155 to the extent that any

work was done in connection with those reports, and that is the reason for the cross-examination.

"Mr. Blackman: My position, your Honor, is just this: That they have those reports. They have the forms, not the figures. They have got the reports, they have every opportunity to develop any point in connection with the work of this department. Now, what those particular figures happen to be, whether the depreciation rate in one [fol. 6869] company was 5 per cent, and another 7, makes no difference to the work of this Comptroller.

"Mr. Goldstein: And as we have developed here, and as has already been developed, they have made use of plant and of revenues, and of expenses appearing on those reports, there isn't anything they have given us with reference to those excepting computations, which it would take us ten years to make.

"Judge Wilkerson: You must remember in a case like this, it is just possible to prevent relief by piling up an enormous record here which, in the end, is incomprehensible. Now, you ask to see these documents. If they permit you to inspect them, they are entitled to have them in. Or the Court is entitled to see them, if they are testified to. You cannot insist on seeing things without creating a situation where somebody is entitled to have it in the record.

"Mr. Goldstein: Right.

"Judge Wilkerson: And when you come just simply to shovel carloads of material into the record in that way, the Court will scrutinize carefully whether or not it really helps the Court in arriving at a conclusion, or whether it is far-fetched and fantastic.

"Mr. Goldstein: But it is our contention that they have used the very reports in every one of the allocations, and that the benefits of their services involve the comparisons which they are making on those reports. Now, if they don't want to give us access to them, they have no right to make use of them themselves.

"Mr. Blackman: That point, sir, is well taken, and we concede it, and we have offered them access, the papers have been here.

"Mr. Goldstein: You have not offered us access to the provisional estimates of the other licensee companies.

"Mr. Blackman: We have offered them access to every figure that we have ever used in any way in this case, we have said, 'We wish you to limit your scrutiny to the

ures which have any bearing on these things,' these sheets and reports are very long ones, they contain figures dealing [fol. 6870] with fifty or sixty different matters. Now, one particular line of that report is what we have used in many cases, that is, the plant investment of these various companies. It is shown on one line, in so far as we have used plant investment as a ratio, we concede freely their right to scrutinize the plant investment figures on this report, and we have offered, and we now offer, to let them see every plant investment figure. We have offered to let them see every figure on any report that in any way deals directly or indirectly with the figures that we have used in building up our ratios.

"We do say that we think it manifestly unfair for them to get these voluminous reports and scrutinize the whole report from beginning to end in the hope that they may find something somewhere in the report that they may use in some way, unrelated to the subject matter with which those reports were used by us.

"Now, in so far as we have used them, they are free to see them. Every line of those reports is open to them for their inspection, in so far as we have used it in any way. But there is no connection between revenues and plant investment, as reported on those reports.

"Mr. Goldstein: But you used the revenues and plant investment in your allocation, did you not?

"Mr. Blackman: We will let you see everything; but I am directing my argument to one specific thing at a time. They say we have used plant investment. We say, 'Yes, and you are free to examine all figures that relate to plant investment on these reports.' But they say, 'We want to see what your revenues on these reports were.' We say no. When we come to revenues, and have used them, we say, 'Yes, you can see the revenues.' But we haven't used hundreds of other things that appear on those reports, and we say, as to those, we do not think you have any right to see them, and I understand that is the position which the Court has sustained.

"Judge Wilkerson: We have sustained that position. Of course, the mind of the Court is always open to additional argument, if you can convince us that you should have the right to inspect them.

[fol. 6871] "Mr. Bracelen: May I say this, your Honor, repeating what I did say upon the argument of the motion

before your Honor and Judge Evans, if there is anything contained upon these reports that we have not used, but which is relevant, material in this case, they may have that.

"Mr. Goldstein: And when will we get a chance to use it? That is the purpose of withholding it, so we can't use it, as a practical matter. If we have got to examine three thousand pages of documents when it is relevant, at the end of the case, as a practical matter it is impossible for us to make use of them, and we have asked for them for a year.

"Mr. Blackman: The figures on those reports do not make them relevant or irrelevant.

"Mr. Goldstein: We will develop it.

"Mr. Bracelen: It is now, I think, ten days since Mr. Goldstein was told that these reports were available for examination by him.

"Mr. Goldstein: I couldn't stop the case to examine those reports, could I?

"Mr. Bracelen: Of course, we can't help that.

"Judge Wilkerson: Well, Judge Evans and I both felt that there should be some limit to the question of production of this list of documents, and where the section of the Constitution is invoked by a company which is operating in one local community as to which the production is invoked, but is operating a large number of utilities in other sections, if it is a rule of evidence that the company put in evidence practically everything relating to the entire business all over the country, the net result is that a rule has been laid down which simply makes impossible a suit of this kind.

"Now, this practical question, if the decision of the Supreme Court in the end should say that that is the end of it, there is something vastly more at stake than the mere matter of rates in this case. That is, whether this form or organization can continue and be afforded the protection of the Constitution as to the particular limits in which it is operated. It may be that a rule of evidence will be laid down which makes it impossible for a company to get that kind of redress in a court, but it would seem to us that [fol. 6872] the rule which is invoked here by the defendants in this case, carried out to its logical conclusion, would simply make a case of this kind impossible.

"Mr. Goldstein: Your Honor, it is our position that if the court's position is that you cannot use the comparative

test within the system, then the company who comes into court cannot itself use that comparative test in this case.

"If it uses the comparison of revenues, expenses and plant of the Illinois Bell, compared to the others, then it has laid itself open, and we have a right to see all of the things bearing upon the revenue, whether or not they are proper.

"Judge Wilkerson: Now, let's stick to the particular thing we have here. We have expense of the comptroller's office. That expense of the comptroller's office is the labor of preparing and examining certain reports, and of analyzing them. They come in here and say that they expended so much work on that. They justify that by saying it is of benefit.

"Mr. Goldstein: Now, how do we know it is of benefit? If it was of benefit, we have a right to measure it, the relative benefit to the Illinois Bell.

"Judge Wilkerson: How can you tell whether it is of benefit by looking at the reports? How can the Court tell it by looking at the reports?

"Mr. Goldstein: They speak for themselves. The comparison of those reports goes to the licensees.

"Mr. Blackman: And precisely what those comparisons are have been in Mr. Goldstein's possession for months.

"Mr. Goldstein: 86 has never been in our possession.

"Mr. Blackman: The only thing is, he wants to see what the precise comparison is. It does not affect the work of the comptroller whether the comparison shows up well for this company, or poorly for that company.

"Mr. Goldstein: No, but it does make a difference, when you use plant revenues and expenses, that we can see the character of the revenues that you have included, and the character of the plant that you have included.

"Mr. Blackman: He has all that, your Honor.

[fol. 6873] "Judge Wilkerson: Now, of course, coming down to this matter of a great regulating body in one state, we will assume such a body imposes a confiscatory rate on the utilities operating in that state. The threat which is held over the company is this: You may not have relief against the action of that state body unless you expose to the scrutiny of that body your business all over the country.

"Mr. Blackman: Precisely.

"Mr. Goldstein: No, your Honor, we say that is not so. The only time that becomes of importance is when they pool

the expenses of all the companies, and then say, 'We are entitled to charge you one-twenty-fifth of the expenses,' and don't want to show us the character of the expenses of the other twenty-four-twenty-fifths.

"Judge Wilkerson: Well, it might be that that item of the comptroller's would be of value; but let's go on."

These same reports are distributed to the people that are interested. The distribution is various. So far as I know they are used as a basis for the determination of the policy of the general staff and of the various departments of the American Telephone and Telegraph Company. I distribute them. I don't know what is done with them after they leave my office. I assume that they are used as sources of information, so as to give a better license contract service. I think there are one or two of these C. R. reports that go back to each of the companies.

C. R. 86 goes back to the companies. C. R. 86 goes back to the Illinois Bell, and shows the unit expenses for each of the years for each of the companies, containing such information as current maintenance expenses per station, the traffic expenses per station, the commercial expenses per station and the miscellaneous expenses. That is related to plant and is related to stations.

C. R. 86 is sent to the Illinois Bell for the information of the president. It is a service we render to the president of the Illinois Bell under the license contract and not as an investor.

I consider that the sending of this is of service to each [fol. 6874] of the licensee companies, because he sees there the performance of other companies and he can gauge his own performance, in a measure, by it, and he has that much more information as to what is going on elsewhere in the telephone business. As to whether the experience of the companies are on a comparative basis, or on relatively the same basis, so that these relationships have value to each of the licensee companies, I know so far as they are based on the accounts that the same system of accounts as used in the classification of the various items of expense is the same. And as to what benefit it is to each of the companies to see these ratios of each of the companies for the same item, I should think any operating man would say, if he had comparisons of a number of companies, he could better

gange whether he was doing a good job or not. He might get a lot of things from the comparison.

There would have to be some degree of similarity to be of benefit.

C. R. 52, 53, 53A, 54, some of them involve comparative statistics of the various companies. Those comparative statistics are send around by my department to the various departments, portions of the general staff, for them to work on.

"Q. And the purpose of sending that to them is so that they can formulate a policy for all the licensee companies, is that correct?"

I said I didn't know what use they made of them. I send them around because I have been requested to send them, and I assume they want them because they want to educate themselves, to better serve the company.

The expenses under the license contract include the expenses of the employees of the various departments that make use of these C. R. reports.

Referring to Exhibit A-164; what I have done is shown right on the exhibit. In the first column is the average amount of capital stock and premium installments and funded debt and so on. And in the second column I have shown the dividends paid and the interest paid, and the [fol. 6875] amortization charges. Take 1923, for instance, I show a cost of funds as 6.87 per cent. That may not be expressed as saying that for the year 1923 the cost of funds to the American Telephone and Telegraph Company was the cost of paying the interest and amortization on this funded debt, the interest on this capital stock installments, and the dividend of 8.79 on this capital stock, because that statement has omitted premiums and surplus.

The American Telephone and Telegraph Company did not pay 8.79 on its capital stock. When we talk about capital stock, you have got to add premiums and surplus in. It paid at the rate of $8.79 on whatever the capital stock was worth. We paid a $9 dividend.

The reason we have $8.79 is that we have a slight adjustment of moneys deposited with us by subscribers to the stock in connection with the new issues of stock.

Our cost of funds is really the amounts we pay out to take care of our interest and amortization on our funded debt, and

our $9 dividend after making allowance for surplus and capital stock premiums. That cost we used in connection with all of my exhibits is the annual charges as representing the cost of the American Telephone and Telegraph Company under the license contract because that is what every dollar in the business cost.

Under Exhibit A-165 I showed another possible method of determining cost of funds, merely to make a showing of what the cost of money would have been if we hadn't given credit for surplus. I did not, in other cases, use a cost of funds on the same basis as I use it in A-164. I determined cost of funds in this case in the manner that I have in Exhibit A-164, because I think after long and mature consideration it is the right way, it is a fair and reasonable way to determine the average cost of all funds used in the business.

As to whether upon the supposition that the American Telephone and Telegraph Company, instead of paying a $9 dividend, would have paid at the rate of $15, I would have [fol. 6876] considered the cost of funds to include that $15 also, ordinarily I would not have used the $15, but if it took a $15 dividend to get the money into the business, I would have used it.

If the company couldn't pay any dividend, I would not then have said it cost nothing to get this money because that would have been unreasonable. I draw the line at this point: If you will look at '23, you will notice that if you add to capital stock, capital stock premiums and surplus, that we were paying $7.17.

Now, stock money, of course, takes all the contingencies that go with it, and I did not consider in the first place that $7.17 was an unreasonable return on common stock money.

Mr. Gifford's statement of the Company's policy, that there would be no melons or extra dividends, but that it aims to pay dividends on stock sufficient to bring money into the business, the reasonable, fair dividend, and that we wanted to continue on that basis, is another factor to take into consideration.

Another factor to take into consideration is the tremendous volume of money that we have had to obtain for the business in the last few years, and I took this $9 dividend, which is $9 paid on say, roughly, $140 of equity, or around about 6.4 per cent on the dollar.

Now, I take that as a reasonable dividend. I certainly would not have taken a $15 or $20 dividend in this case, be-

cause that would have been unreasonable. I certainly would not have taken a 1 per cent dividend. But I took the dividend as a reasonable one,—what, in the opinion of our board of directors was a reasonable payment to make to get the money.

I have used another method within the last two or three years. In the Michigan case a few years ago, before I had quite as much experience as I have gotten this last two years in getting up license contract exhibits, I took the cost of funds in the immediate period. For instance, I took into consideration what we paid for money in the immediate year, and I took into consideration what we had paid during the last two years, or the last three years. For instance, [fol. 6877] on temporary financing, I took a three-year period, what we had paid over a three-year period, and averaged that.

On holding funds available, I took from a one to a two-year experience. But the absurdity of the thing was that if in one year we issued capital stock, and the next year we would issue bonds, why, this rate would bob up and down. In one year it might be 8.5 per cent and the next year it might be 5 per cent.

Now, where I was working with a period of nine years, why, it was obvious that it would be absurd to follow that basis. I testified in Michigan, in the case of Michigan Bell Telephone Company vs. Samuel Odell, on the 12th day of April, 1929. And in connection with my testimony, I offered an exhibit which purported to show a study of the license revenue and the expenses, as one of my exhibits.

The exhibit identified as Defendants' Exhibit D-115 is an exhibit that I offered in the Michigan case on April 12, 1929. I have since filed in the same case an exhibit using the method of computing funds on the basis used in this case. I filed the amended exhibit in May, 1931, the first occasion I had to file a revised exhibit. That was subsequent to the Supreme Court opinion in the instant case. And in the second exhibit I used the cost of funds as used in our case and I also explained the differences.

I explained that I felt that this method used in this case was a more reasonable, conservative method.

"Q. Now, Mr. Heiss, depending upon the method that you used would depend the margin that you have left from the

license revenue after taking care of the charges, is that correct?

"A. Yes, that would follow."

If we used a method of determining the cost of funds, which cost was high, 8 per cent, it would leave us with a smaller margin than if we used one that involved a 6 per cent cost. Two items of license contract to which the cost of funds would be particularly important would be losses on loans, the temporary financing, and the holding of funds available.

"Q. And in those jurisdictions where the losses on loans [fol. 6878] were high, as they were in Michigan, it would be of advantage to use a high cost of funds, is that correct?"

The volume of the loans in those jurisdictions never entered into my mind in selecting the method for computing the cost of funds.

Three years ago, before we had much experience, we were considering the method I used in the Michigan case. Since then we have changed to this method, and we would use this method in any jurisdiction.

For the year, 1928, for instance, my method used in this case, and my method used in the Michigan case would give some difference. What it would be, I haven't the figures in mind.

I furnished defendants with a copy of an exhibit which showed the revenues and the expenses in the year 1928 as shown in the Ohio case, using the present basis of calculation. I have not a copy of that exhibit with me.

The exhibit that defendants were furnished on the present method is the exhibit entitled "Heiss Exhibit 10", which is identified as Defendants' Exhibit D-116.

Now, Defendants' Exhibit D-116, which I furnished in this case, and in which I used the present method, showed that the services cost the American Telephone and Telegraph Company an amount which leaves a net deficit for the year 1928 of $1,467,205.

In Michigan, for the same year, using the Michigan method for the same year, instead of showing a deficit of one million dollars, I show a deficit of seven million dollars, and the computations are entirely different computations.

There are three different factors, all of which were explained to the Master in Michigan. In the year 1928, if you will look on the Ohio exhibit, you will find a deduction of, I think, two million,

You will find a deduction of $2,000,000 that I made, an empirical deduction, to take out unlicensed expenses, I can explain that in a minute.

Now, that two million deduction was not in Michigan at all. [fol. 6879] Now, another factor in Michigan was the difference in the cost of money. At the time, in 1928, when I hadn't much experience in this matter, I was told in conjunction with our people to set up the money costs in the way that I described. Now, that will make a difference of two or three million dollars.

We had a method which I used in 1928, and I saw fit to change that method, after mature consideration, for these present cases. Now, the third difference is that the taxes allocable to the Long Lines were put on a better basis, as a current accounting proposition, since 1927. Now, the three factors, the adjustment of the tax accounting of the Long Lines Department, the change in the method of computing costs of money, and the deduction of two million dollars, will make up any difference, any substantial difference that you have between my 1928 Michigan exhibit and my Ohio exhibit. Now, the whole effect of this has been to produce a lower license contract cost for these present cases, that is, the net effect is that we are coming here with a lower license contract cost.

"Q. Does your cost shift with the case, or does it shift with the facts?

"A. Oh, no. If you had listened carefully to what I said, you must admit that a man has the right to change his opinion.

"Q. As to what they cost?

"A. Yes, honestly, if he studies it and comes to an honest determination, why, he has a right to shift his method to what he thinks is right, if he feels that his former method needs adjustment, why, he certainly is privileged, in a later case, to put in a method that, in his opinion, is a better method."

The method here is more favorable to the Chicago company, finitely more favorable. In the Michigan exhibit I showed losses on temporary financing as a cost of the service, of $4,100,000; and in the Ohio exhibit I showed there was a temporary financing cost of a million, making a difference of three million dollars in that item; and when I came to allocating to the Chicago area in 1928, I did not take that

[fol. 6880] item into account at all, although there were loans outstanding to the Illinois Bell.

I followed that procedure because I changed my method of computing the cost of money held available, and adopted for the former method, what, in my opinion, was a more conservative method, and after I had my total cost of funds held available for the American company as a whole, I decided that it was a conservative procedure not to allocate any part of it to Chicago and I would have done the same thing if I had been in any other jurisdiction at this time. It wasn't because Michigan had loans and I could justify the license contract on that item alone; that never entered into my mind at all.

The Michigan method is not ridiculous. At the time that I developed the figures on that basis, it was the best thing that I had up to then developed, but since then I have developed what I think is a better basis, and, as an accountant, I have enough pride to change my mind to the thing that I think is correct, when I find out that a change should be made.

I read the Stockholders' Annual Reports for the period 1921 and 1922 and 1920. I helped write them. I recall there the description as to the computation of costs of the license contract. I don't know very much as to the method used then in determining the cost of funds to the American Telephone and Telegraph Company in the 1919 and 1920 statement. I was not Comptroller then. I worked on the statement in the New York Telephone case presented by Mr. Gifford, showing the cost of funds. We used at that time, in determining the cost of funds, substantially the same basis that we used in Michigan.

"Q. But reflecting now, you think that was also ridiculous?

"A. I didn't say ridiculous. It is not ridiculous. If you do the best you know how to do at the time it is not ridiculous and any man has the right to change his views if he finds he has been wrong."

Referring to City Exhibits 157 to 157-J, which Mr. Goldstein stated cover the financial data regarding the Central [fol. 6881] Union, I couldn't say now whether I prepared them or not. They don't look familiar to me at all.

I know at the time I testified here two years ago, or three years ago, there was some question of Central Union data, but it was my impression that it was decided that that data

would not be furnished, as the Central Union situation was not material to the case.

Referring to Exhibit A-167, I include in the investment of buildings twelve million, thirteen million 1923 to 1925, and then I have no more investment in buildings. The reason for the change is that our headquarters building at New York which is located at 195 and 205 Broadway, had its first section building built about 1914-1915, I think, and it was owned by the 195 Broadway Corporation, jointly by the American company and the Western Union company; we owned 70 per cent, and the Western Union, 30. Now, later, we needed more office space, and the American company built the section at the corner of 205 Broadway, and for several years it had the deed to that property, to the physical property. That was during the years in question here, 1923, 1924 and 1925.

Now, after 1925, at the end of 1925, this section of the headquarters building was sold to the 205 Broadway Corporation, and after that we owned stock in the 205 Broadway Corporation. So that it passed out of this picture.

The building, while the title was in the American Telephone and Telegraph Company was occupied by some other tenants than the American Telephone and Telegraph Company. If we received rent, we gave credit for the rent. The Western Electric was a tenant. A jeweler was also a tenant. The Western Electric paid an amount representing the cost of house service, and the interest on the money invested in the building. That is during 1923, 1924 and 1925. The rent was billed to the Western Electric on the cost basis, plus a return on the capital that we had invested.

As to the following statement which Mr. Goldstein said [fol. 6882] Mr. Bracelen made in a letter dated September 22, 1931:

"That the basis of rental charge is as follows: with the exception of a few minor leases and fixed rentals, the rents charged to all tenants, including Bell System and others, are based on (a) the cost of operating and maintaining the building, including the depreciation apportioned on a square foot basis; plus (b) taxes, actual interest charges and 5 per cent on the issued capital stock apportioned to the tenant on the basis of an appraisal of the square foot value of space occupied by each, this value being dependent upon the location of the space."

That would be true in the case of the buildings that were owned by the building corporations, and there was stock outstanding. In this particular building, while we had the deed to the property, the rentals would be figured on the basis of our costs, including taxes, depreciation and everything else, —all other things.

The basis of determining how much the Western Electric should pay as a return on the investment in the building was the house service, and depreciation, taxes and interest charges. I don't know just exactly the rate. I think it was 5 per cent.

It was 5 per cent on the money that the American company had put in that building. The Western Electric occupied a certain percentage of that building. And on that per cent or portion of the building, the Western Electric paid rent to the American Telephone and Telegraph Company on the basis of 5 per cent of the investment. The American Telephone and Telegraph Company occupied a certain percentage also. And other tenants, if there were any, occupied a certain percentage.

We give credit to all the rent received. The effect of it is that the difference between 5 per cent that the Western Electric paid and the 6.87 that we charged, the licensees absorb through the license contract. If the Western Electric had paid more, the Western's cost to the companies would have been more. We aim to run the building corpora-
[fol. 6883] tion on a cost basis, and that is what these figures reflect. We aim to make no money from our tenants in the building corporation, whether it be the Western Electric or ourselves. We make the difference between what we get from them and what it costs us through the license contract, but by the time that difference is allocated to the Illinois Bell, it would be almost infinitesimal. I have never figured out how much it is, but looking at the thing generally, it would not be worth while.

I consider that the buildings down in New York as owned for the licensee's benefit. And they get the credit for all the tenants' rent. I do not consider that the American Telephone and Telegraph Company as a holding company owns that investment, like any other investment, and charges the licensees on the same basis that it charges the Western Electric, because the American Telephone and Telegraph Company as a holding company probably would have needed two or three little offices, if it were simply a

holding company. The Western would need just as much space as it does now, if it served the company. But I don't consider this building as being jointly for the Western Electric and for the licensees, because it wasn't built in that way. The Western is just renting space in it, as any other tenant would rent, and we saw no reason why we should pile up rental on the Western Electric, and increase their costs, and increase our revenues, and in turn have the Western Electric's cost go back into the prices of goods sold to the companies.

The Western Electric cost would be distributed between the Bell and the non-Bell customers, but a very small part would go to the non-Bell. That part of the Western's cost which goes to the non-Bell is taken out by the Western before it distributes, and the amount would be so small you would not notice it. There would be a little infinitesimal part.

I don't believe any associated company occupies any of the space. I think the New York Telephone Company had a few pay station telephone booths in it at one time. I don't know what rental they paid. I think it was on the regular [fol. 6884] basis. The statement that all the tenants, including the Bell System, paid on the basis of apportioning the cost plus 5 per cent return, if we made it at the time, is the fact. We would not give you a statement that was not true.

Speaking now about the period, beginning with 1926, when the title to the buildings was held by the 195 and the 205 Building Corporation, the basis that I computed the rentals as reflected in my exhibits was the same basis as quoted a while back, it was house service, depreciation, taxes, interest, if any paid, and a 5 per cent dividend on the stock.

Subsequent to 1926, the rental is a computed figure, taking into consideration the taxes, the house service, expenses, the depreciation, any interest which the building corporation pays, and if there is any stock out, we include a 5 per cent return on the par value of the stock; the idea being to compute a rental figure which is a minimum reasonable rental figure. Now, that is simply the yardstick for computing the rental. And that is the rental. Now, that goes into our departmental expense account, and it comes out again, in so far as it represents payment to ourselves, it comes out again in this cost of money used,—or cost of the physical property used in the business.

That does not reflect itself in my figure on Exhibit A-167, because subsequent to 1926, it doesn't come out, because there are no payments on our own property. But prior to that time, it does come out. Subsequent to 1926, I do not put in as part of the charges against the license contract first the investment of the American Telephone and Telegraph Company in that stock, and the cost of 6.87, or whatever it is, to procure funds, and give credit for the 5 per cent. All we deal with subsequent to 1926, is the rental.

"Q. Then why do you not use the same methods prior to 1926?

"Mr. Blackman: Well, we are going to ask the Court to do that, Mr. Goldstein.

"Mr. Goldstein: No, I want to show the reason why, in [fol. 6885] one case, they have got the title, and in the other case they own stock.

"Mr. Blackman: We think it is the same thing, substantially, and we are going to ask the Court to make us that allowance.

"Mr. Goldstein: With that explanation we are satisfied.

"Mr. Blackman: We have based it on our physical assets, in making this cost, as it was not strictly a cost.

"Mr. Goldstein: We will accept the answer of counsel as an answer to the question.

"Mr. Goldstein: To clear up the record, I stated yesterday that we were advised by Mr. Bracelen that the figures used in arriving at depreciation expenses of the telephone instruments at the 7 per cent rate in 1923 to 1927, were as follows:

"Life, 11 years, and salvage, 24 per cent. Mr. Blackman asked that we produce the letter.

"Mr. Goldstein: Now, here is the letter, the original letter, signed by Mr. Bracelen, dated September 22nd, 1931.

"Mr. Blackman: I have no objection to the letter going in evidence, it is signed by Mr. Bracelen, and I have no objection, but I would like to read the letter before I consent to some characterization of what it says.

"Mr. Bracelen: Well, I doubt whether the letter should go in. It is probably a letter of many pages, containing many hundred items. If I signed it, I suppose it is all right.

"Mr. Goldstein: We would just like to get the fact in as to the life and salvage on telephone instruments; a life of eleven years, and salvage of 24 per cent.

"Mr. Bracelen: Yes, that is the rate which the witness testified to.

"Mr. Goldstein: No, we are not questioning the 11 years, but we want to make use of the fact that it was 11 years. Therefore, we ought to have the fact in.

[fol. 6886] "Judge Wilkerson: I guess you have got it in now.

"Mr. Goldstein: Mr. Heiss, to complete the eleven million dollar transaction, we will identify the letter, copy of which was sent by Mr. Bracelen subject to your check, it is a letter from Mr. Blair-Smith, dated March 4, 1924 to the Illinois Bell, as Defendants' Exhibit 117."

I did not include in my exhibits the losses by the Bell Telephone Securities Company in the purchase and sale of securities, or in its operations. My exhibits are absolutely clean of any Bell Securities expenses or revenues. I did not, in any of my exhibits, give credit to the Illinois Bell for selling stock of the American Telephone and Telegraph Company, because the Bell Securities Company does that, I understand. It makes settlement with the Illinois Bell -or whatever services are rendered to the Securities Company.

It is my understanding that there is a payment made by the Bell Securities Company to the Illinois Bell for the use of the Illinois Bell's facilities in selling stock to the American Telephone and Telegraph Company. I do not know whether that payment covers special service, special expenses or a portion of the return on investment, taxes, etc. That is a little removed from my jurisdiction.

Referring to a memorandum covering pension fund accruals which we sent to the Illinois Bell, with my letter of September 22, 1931, that memorandum is just as good today as it was when we sent it. The agreement with the Bankers Trust Company and the American Telephone and Telegraph Company provides a termination of the trust in ten years. That was put in to comply with the peculiar legal situation in the State of New York. That same sort of provision, and the same method, is used by the licensee companies, including the Illinois Bell in connection with pension funds. We would have been very happy, at the time we established this trust, if we could have created a permanent trust, but we could not do it under the peculiar legal situation in New York.

As to whether if in ten years from now the agreement is [fol. 6887] terminated, and the American Telephone and

Telegraph Company comes into possession of the pension fund moneys, the American Telephone and Telegraph Company would hold it in trust for pension fund purposes, and for no other purpose, that bridge has never been crossed, because we don't expect moneys to ever come back.

There is no provision now as to the disposition of those funds, except that which is stated in the company's Employees' Benefit Plan, that these funds will be used for pension purposes, to meet the company's obligations.

Now, we do not figure any ten-year period here, or anything of that type. We would have been glad to have made the trust agreement a permanent agreement, and we did not feel it was necessary to cross the bridge as to what would be done with the funds if they were returned. The agreement I am referring to is the Employees' Benefit Plan.

There are two pamphlets. There is first our Employees' Benefit Plan, which is the Plan we hand to every employee that comes into the business, so that he may know what benefits he gets as an employee of the business. The second is a trust agreement with the Bankers Trust Company.

We will be glad to supply defendants a copy of the pamphlet, which shows how the American Telephone and Telegraph Company will dispose of the money, apart from the agreement with the Bankers Trust Company. I might add, Mr. Goldstein, that the particular matter that you were referring to is specifically—is covered in Section 4-8,—Section 4, Pensions, paragraph 8.

Cross-examination (continued).

By Mr. Goldstein:

May 23, 1922.

I had nothing to do with the preparation of Exhibit A-49. My exhibits refer to the Chicago area, or the area involved in this suit.

"Mr. Blackman: And that is, we have made no allocation between interstate and intrastate on these figures, [fol. 6888] and the same percentage of interstate will have to be taken out of these as was taken out of the other expenses of the company.

"Mr. Goldstein: All right. Now,——

"Mr. Blackman: That is my impression now. I have not considered it carefully, but I do not think there is much doubt about that.

"Mr. Goldstein: Well, that is the fact we want to establish, whether——

"Mr. Blackman: This fact is certain——

"Mr. Goldstein: —the items of cost——

"Mr. Blackman: This fact is certain, that we have taken out nothing for interstate in producing these figures; we have allocated to the Chicago area on the basis of the people, and the plant.

"Judge Wilkerson: Well, the allocations to the Chicago area so far as distribution between the interstate and intrastate business is concerned, will have to be treated the same as the other items——

"Mr. Blackman: I assume so.

"Judge Wilkerson: —with respect to the Chicago area.

"Mr. Goldstein: We object to each and all of the exhibits offered through Mr. Heiss, beginning with A-150 and including A-169, and the summary sheet to be offered by plaintiff as A-170, on the following grounds:

"First. That the sources of information from which the calculations therein shown purport to be made, have not been made available to the defendants.

"Second. The exhibits and the testimony show that the expenses allocated to Chicago represent a part of a larger amount of expenses of a pool consisting of many participants who share in some of the same services that the City of Chicago shares in, and in some that the City of Chicago does not share in. No showing has been made as to the character of the services of the pool, whether the other participants pay for the services, and the records have been denied to the defendants from which can be deter- [fol. 6889] mined whether the rest of the pool in fact paid anything, whether the expenses for the particular services also furnished in the City of Chicago absorb the entire payment from the rest, whether the services not furnished from Chicago absorb the entire payment from the rest, leaving the Chicago Company to pay all of the expenses of the other services, or leaving the Chicago Company as the only one to pay for services rendered to the others without pay. The records have been denied from which we can tell the extent to which the alleged pool services benefit the others as compared to Chicago.

"Third. These exhibits contain and have not separated the portion of the pooled expenses admitted to be incurred

in the preparation of the reports for many participants in the pool, and for performance of services predicated on the reports from many participants, the character and contents of which reports from such participants defendants have not been given access to, or information about, other than the statement of the plaintiff's witnesses that they are of the same character as those furnished to Chicago, and whose testimony can in no way be checked.

"Judge Wilkerson: Have you anything to say in reply to the objection?

"Mr. Bracelen: If your Honor please, as to the objection that the original sources of information have not been made available to the defendants and their counsel: I desire to make this statement, that we have tendered to the defendants all of the reports which the witnesses have identified in their testimony, and specifically in the case of this witness, those which he has referred to, for complete examination by them. They have been advised that they may see all of these reports in their entirety, that they may check the data contained in those reports which has been used by the witnesses in any way.

"For the most part that data has been used to furnish a basis of allocation of the license contract costs. It seems that that tender would dispose of this objection, the objection to these exhibits.

"But I wish your Honor to know that the tender we have [fol. 6890] made has gone beyond that. We have tendered to them for examination in their entirety, all of the reports which they have asked for. I include in that statement the provisional estimate reports for all of the companies. They have already had furnished to them, as I believe the record shows the provisional estimate reports of the plaintiff. This inspection that I now refer to of the M. R. & C. R. reports and the Provisional Estimate reports, going beyond our exhibits and the underlying data for our exhibits, has been made upon this basis, that if they will indicate that they consider any information upon any of these reports as being material and relevant to any issue in this case, we will consider whether we will permit them to take such information and data from the reports.

"That of course is merely a suggestion for the convenience of everyone concerned. It may be that if they will point out what there is in these reports beyond anything that we have used as a basis for our exhibits, and testimony,

which they desire to use for any purpose on their part, we can agree and it will not be necessary to take the time of the court upon that. If we do not agree, then we have stated to them that of course the matter presumably will be presented to the court for a ruling as to whether the data they desire are material or relevant, and are data to which they are entitled.

"I am at a loss to understand how that tender can be in any respect unsatisfactory to counsel for the defendants. It seems to us that it is a complete tender. It makes available to them for inspection all of the reports and all of the information they contain, and we merely ask them in so far as they desire information beyond that which we have made use of, to indicate to us in the first instance, if they will, but if not, to the court, what it is they think they are entitled to have, for a ruling.

"I think that there will be no disagreement between us and counsel for the defendants, as to the accuracy of my statement just made, as to what the tender has been. I may say that in so far as the reports which we have used in connection with the testimony of witnesses who have been on [fol. 6891] the stand ahead of Mr. Heiss are concerned, those reports were tendered to them, I think a week ago last Thursday, or possibly it was a week ago last Friday, but they have understood that these reports have been available to them either at the Illinois Bell Company offices, or here in court, in the custody of the clerk, at any time they might indicate that they desire to examine them.

"Now if that tender is not satisfactory to counsel, I think we are entitled to have them state in what respect it is not satisfactory; and in that connection I wish to say merely this further, that we are very near now to the point of resting our case on direct. I do not mean to hold out any hope that we will do that today, and probably not tomorrow, but I should think Wednesday, provided the question as to the admissability of all of the evidence we have offered is disposed of.

"Of course, we cannot rest until we know whether our evidence is in the record or out, and if any of it so far offered is ruled out we will wish to supply the deficiency, and of course, will do so.

"Mr. Goldstein: Saturday, accompanied by Mr. Rainwater, of the Illinois Commerce Commission, I conferred with Mr. Jones, and had a memorandum prepared—or Mr.

Jones, rather, had a memorandum prepared at that time, as to just what transpired. I would like to read the first paragraph of it, which will indicate the whole nature of the tender.

'Mr. Jones stated that he was offering to Mr. Goldstein all of the figures used by the plaintiff in the preparation of its exhibits as hereafter detailed, and that the figures could be copied.

'He further stated that if Mr. Goldstein wanted other figures, and would indicate what they are, he would consider the matter, and if unable to agree, would submit it to the court.

'Mr. Goldstein asked whether these offered exhibits included any provisional estimate statements and letters of transmittal of companies other than the Illinois Bell, and Mr. Jones stated, no.

[fol. 6892] 'Mr. Goldstein asked what documents and figures were offered and the basis upon which they were offered, and suggested that in view of his unfortunate experience with Mr. Cleveland, Mr. Ohlander and Mr. Rainwater would go over the documents and figures, and should dictate a memorandum containing specifically the terms of the offer; that as soon as this memorandum was typed, Mr. Rainwater would start inspection according to that memorandum and otherwise.'

"On Sunday afternoon there was delivered to us the typewritten memorandum, and there was attached to it a sheet—two sheets which were not part of what was dictated on Saturday, which did expand the offer to include:

'Any other M. R. or C. R. reports not above referred to that underlie these exhibits, and the same offer is hereby made as to those. The same offer is also made with respect to all such reports, whether or not they underlie or relate to plaintiff's exhibits; that is, counsel for the city may see any M. R. and C. R. reports, also any provisional estimate reports; and if they will indicate what data contained in them they wish to take off, we will consider the matter promptly, and if unable to agree, will submit it to the court.'

"Now the terms of the offer both as to these and also as to the documents which were tendered to us on Saturday, are these: We can look at several thousand sheets of paper that contain figures; on each of these sheets there is one line marked 'total', and that total, which is a summary of probably 25 or 50 figures, may be copied. We may not copy, and

so as a practical matter not use, any other figure on the sheet, for obviously, to look at several thousand pages, and to commit them to memory—and even then as a practical matter we could not use them anyway—means as a practical matter that we are limited to checking the mathematical accuracy, and there is no question about the mathematical accuracy of a figure; but we are not given any opportunity to make use of any detail involved in that summary which we may desire to use as a basis for our contention; and [fol. 6893] therefore, we say that that sort of a tender as a practical matter makes it impossible for us to check the information which they are using as a basis for that character of compilations, unless we accept their theory of the case. If we have a right to look at them, we should have a right to make any test check we want on the basis of the figures, to test out our theory.

"They have used for instance total plant; it may very well be that on our theory, instead of total plant, exchange plant is the proper basis. If we should find that exchange plant is the proper basis, there is not any way we can have the figures because we are only allowed to look at them, and not make use of them.

"Judge Wilkerson: Well, take your last point there: If the figure which they give you is total plant, and not exchange plant, and it should be held by the court in the end that exchange plant is the proper figure to be considered in this particular connection, and that is not in the record, then all of that testimony——

"Mr. Goldstein: No.

"Judge Wilkerson: Does it not lose its effect?

"Mr. Goldstein: No, but the big element in the license contract is going to be this—the big issue is this, and it is for that reason in our opinion that they have withheld the information.

"It will be our contention that as between the various participants in the pooled services, some of these services on our theory of allocation absorb the entire payment, and if we are not permitted to get the information so that we can prove that——

"Judge Wilkerson: Why do you concern yourself about that?

"Mr. Goldstein: Because as between the two bases of allocation—there may be two bases of allocation.

"Judge Wilkerson: But I say, why do you concern yourself about it? They have picked out a theory on which they are justifying this license contract, and if that is not the correct theory they fail.

[fol. 6894] "Mr. Goldstein: No, they may have a theory—pardon me.

"Judge Wilkerson: But it is not for you, you are not required to establish what the facts are on some contradictory theory. If their theory is right, and they have all of the facts in the record that are pertinent on that theory, they win; and if they have not all the facts in, they lose on that license contract, that is all.

"Mr. Goldstein: No, but——

"Mr. Haight: So far as that goes, that is very well, but they are in a court of equity, and they have announced through counsel in court that their policy is not to reveal or disclose except as they are forced to, and we have a perfect right in a court of equity, where the suitor comes in here asking for relief, to investigate, to support our theory, and not to be left only to the negative position that that course suggests.

"Mr. Goldstein: There is specifically—they have come into this court, and they have eliminated in this case——

"Judge Wilkerson: If the whole license contract allowance should be thrown out, they lose this lawsuit.

"Mr. Goldstein: They have come into this court, and they have adopted a theory within the last few days which eliminates the question of loans. Now, if we have these figures we can show that the losses on those loans to the other participants, absorb the entire payment. We need no argument as to whether it is proper or not. By withholding the information, they prevent us from pointing out to this court the importance of these other services that the others are getting, that are not made available to us, or that we are not participating in, and therefore, we are left only to argue as a matter of logic, and not to use the facts, the experience of the companies, as to what has been going on.

"Judge Wilkerson: Well now, what is the total volume in point of physical size of these papers to which you want access?

"Mr. Goldstein: They are offering us access—why should they worry how long it will take us to copy them?

[fol. 6895] "Judge Wilkerson: Well, how large an array of documents is it?

"Mr. Bracelen: Well, your Honor,——

"Judge Wilkerson: Because I cannot see—they have put in their case on a certain theory; they introduce evidence which they say sustains that theory; and they say this other information on their theory has no place in the record at all. Now in order to get any benefit from their documents, they must have established their theory of the case. If their theory falls, then there is no evidence.

"Mr. Goldstein: But suppose there are two theories.

"Judge Wilkerson: Well——

"Mr. Goldstein: Why should we be limited to their theory?

"Judge Wilkerson: I say, if their theory is erroneous, their case falls. On the other hand, you say you want to examine these documents to build up a case on another theory. That necessarily means that these documents get into the record, because if you can look at them, the Court has the right to look at them, and the Court must look at them in order to see whether you have properly applied your theory. That is to say, if they are the figures which you want to use, the Court must look at them if you look at them. That brings us to the question suggested here the other day, whether after all the Supreme Court in this case has laid down a rule under which nobody situated as this plaintiff is, can make out a case. That is what it amounts to.

"Mr. Goldstein: So far as he wants to use the pool figures——

"Judge Wilkerson (continuing): Because if they laid down a rule under which this record must be multiplied so that there are tens and hundreds of thousands of pages in the record, it simply makes it impossible within the limitations of time which a court has at its disposal, to consider a case of this kind.

"Mr. Goldstein: It is our contention——

"Judge Wilkerson: The case is so large——

[fol. 6896] "Mr. Goldstein: —they have used that method of procedure——

"Judge Wilkerson (continuing): It would fall of its own weight. That is the situation, if your theory is followed out.

"Mr. Goldstein: Now they have used a method of proof to comply with the Supreme Court, which involves the use of these documents. Now they cannot withhold the documents from us on the theory that it is going to clog the

record, when they use the same documents for their theory.

"Judge Wilkerson: Well,——

"Mr. Goldstein: And we have a right to offer them in the record for that purpose. Now if they can go in the record for their theory, why should they object to us having access to them on the thought that they would go in the record?

"Judge Wilkerson: After all now, the question is as to the admissibility of these particular documents, and they are offered here as tabulations——

"Mr. Haight: I think it narrows down to something that may obviate the necessity of the introduction of the documents entirely. It narrows down to this: they say, 'You look at a sheet of paper, and you use only one figure.' We say, when we look at that sheet of paper, we want the opportunity to use other figures in order to check——

"Judge Wilkerson: Yes.

"Mr. Haight: That is where we land.

"Judge Wilkerson: Yes.

"Mr. Haight: If that can be resolved, the difficulty of introducing the documents can be resolved.

"Judge Wilkerson: But the difficulty is this: if you look at these other documents, or these other figures, and you do not agree as to the conclusion to be drawn from them, then you get them into the record, you get them into the case; they must be copied into the record, and you pile up here a record which is measured, not by volume, but by carloads.

"Mr. Goldstein: Then their tender resolves itself into the offer, solely, of the total figure, if that is correct.

"Mr. Bracelen: No.

[fol. 6897] "Judge Wilkerson: Well, after all, is not this true, that if your theory of the evidence in this case is correct, this case simply cannot be tried in any court.

"Mr. Goldstein: No, our theory is that if they use that method of proof, they have got to take the legal consequences of it.

"Judge Wilkerson: All right.

"Mr. Goldstein: They cannot use a summary total.

"Judge Wilkerson: They may have to take them.

"Mr. Goldstein: All right.

"Judge Wilkerson: I am not saying.

"Mr. Goldstein: All right.

"Judge Wilkerson: It may be the court will rule that

way in the end, but the question here is as to whether these documents should be received in evidence.

"Mr. Goldstein: Well, we——

"Judge Wilkerson (continuing): Or w-ether you are entitled to have them ruled out because they have not granted your request for inspection. Now your request for inspection has been denied up to the present stage of the case by the court.

"Mr. Goldstein: Yes.

"Judge Wilkerson: The Court, not the judge sitting, has passed upon your application for inspection. They offer tabulations of the figures which they have used. It seems to me the documents are admissible in evidence. I am not passing now on the weight to which they are entitled, or as to whether they are entitled to any weight or not. It may be that in the end the court would reject them entirely from consideration, but just now the question is whether they are to be received in evidence, as tabulations of something which the court has said you have the right to know, but has denied you the right of inspecting certain other documents.

"Mr. Goldstein: Well, it is our position that the manner of their tender resolves itself into a tender of one figure on the sheet, which itself is a summary, without any op- [fol. 6898] portunity for us to use a pencil, to even see whether the additions were correct, or to make use of them.

"Mr. Bracelen: No, no.

"Judge Wilkerson: Now then, I shall admit these documents into evidence, and overrule your objection, and you may save your exception.

"Mr. Goldstein: All right.

"Mr. Bracelen: I submit, your Honor——

"Judge Wilkerson: Now with the document in the record, the documents having been received formally in the record, if you desire to renew at any time before the entire court, your motion for further inspection of the documents, you may do so. I cannot deny you that right because the documents are here, now, they are in evidence, they have been received.

"Mr. Bracelen: I wish to make this statement, which is a repetition of what I said at the outset, that we are concealing no figure from them—and I want to be sure that counsel understand our position and that the Court under-

stands it. We have tendered to them, and we now tender to them every report they have asked to see. The list of the reports, as I have it in mind, was read to Mr. Heiss when he was on the stand on Friday. The list of reports is the same as that which was contained in the motion to produce, which was argued before your Honor and Judge Evans some two weeks ago.

"We tender to them now, as we have done heretofore, every one of those reports; they may see them freely, and see everything, every figure that they contain. Insofar as we have used certain total figures to which counsel has referred now, and those reports contain specific or detailed figures which go to make up the total, they may check the total, they may use their pencil and paper to whatever extent they please, they may take off the figures that we have used for the purpose of checking our exhibits.

"Now, that all goes to the competency of the exhibits which we have offered. That is one question.

"Now, then, separate and apart from that question, [fol. 6899] is their demand for other data contained upon those reports, which we have not used. Our offer to them is that they indicate to us, if they will, what figures upon those reports they consider material and relevant to this case. If they will do that, we may agree. Failing to agree, the matter is to be submitted to the Court for a ruling. No fact or figure is being withheld from them or concealed from them.

"Now, I am utterly unable to understand why that is not satisfactory. But the point I wish to make is that no figure upon any of these reports is being withheld from their inspection and examination. I am not going to take the time now, unless it seems to become necessary, to take up those various reports,——

"Mr. Goldstein: May we introduce this memorandum, which will show the terms of the offer?

"Mr. Bracelen: Please do not, now; I am not going to be very long.

"Mr. Goldstein: Pardon me.

"Mr. Bracelen (continuing): —to discuss those report forms which were before your Honors when the last motion to produce was argued here. Your Honors, your Honor and His Honor, Judge Evans, examined those somewhat during the course of the argument.

"Judge Wilkerson: Yes.

"Mr. Bracelen: And it appeared that they contain an enormous mass of detailed and specific data of all kinds pertaining to the plant, to the property and the business of every operating telephone company of the Bell System, beginning with the New England Telephone and Telegraph Company, and sweeping across the country. And it seemed to us, and it then seemed to the court, that obviously not all of that information should be brought into this case, which involves an issue here as to rates in the City of Chicago. But let there be no mistake about our position. If there is anything upon any of those reports which they desire in addition to the figures which we have used, let them indicate to us, or to the court, what figure they desire. It may be that we can save your Honor the necessity for any consideration of the matter. [fol. 6900] It may be that we will give them the figure, possibly, whether we think they are entitled to it or not. But at all events, they need only indicate what they want, and ask for a ruling.

"Now, we are not standing upon the position that they must force something out of us. On the contrary, we are tendering them all of these reports, and they have understood that, and in fact, the statement which Mr. Goldstein read from, the memorandum which was prepared by Mr. Jones in consultation with Mr. Goldstein, so states very clearly. But after stating the tender correctly, as I think Mr. Goldstein did, then he proceeds to say that we are withholding something and concealing something. The tender is in direct contradiction to that statement, your Honor.

"I think the record is clear upon it.

"Judge Wilkerson: Well, the difference between you, as I understand it, is simply this: You have offered an inspection of certain portions of the documents.

"Mr. Blackman: No, sir, the whole of them.

"Mr. Bracelen: All of them.

"Mr. Blackman: The whole of the documents.

"Mr. Bracelen: All of them.

"Mr. Blackman: The whole of the documents in every case.

"Judge Wilkerson: What more do you want?

"Mr. Bracelen (continuing): Every document.

"Mr. Goldstein: But we cannot make use of it. We can look at a thousand documents, and what good does it do

to look at them if we cannot use a pencil to make any test?

"Judge Wilkerson: What do you want to do——

"Mr. Goldstein (continuing): Or do anything with them.

"Judge Wilkerson: What do you want to do?

"Mr. Goldstein: Just read them.

"Judge Wilkerson: Do you want to take them away?

"Mr. Goldstein: No. But we would like to have the opportunity to work on them, and if there is for instance any portion of the detail that we think is relevant, we want to have the right to use that figure.

[fol. 6901] "Mr. Blackman: And we say, sir, if they can point out to us——

"Mr. Goldstein: Well——

"Mr. Blackman: —or to you——

"Mr. Goldstein: —is your offer——

"Mr. Blackman: —any reason for that——

"Judge Wilkerson: Yes.

"Mr. Blackman: —we will allow it.

"Mr. Goldstein: Is your offer——

"Judge Wilkerson: The point is this: You say they must point them out to you.

"Mr. Goldstein: Yes.

"Mr. Blackman: Yes.

"Mr. Goldstein: The reason——

"Judge Wilkerson (continuing): What it is about; that they must point out to you what it is, as to which they desire information.

"Mr. Blackman: Yes, sir.

"Judge Wilkerson: And they say they wish the right to fish, to see whether their examination——

"Mr. Blackman: Exactly.

"Mr. Goldstein: No.

"Mr. Bracelen: Yes.

"Mr. Blackman: Exactly.

"Mr. Goldstein: No.

"Judge Wilkerson: Whether they want——

"Mr. Goldstein: Let us——

"Mr. Blackman: Now the point comes down to this——

"Mr. Goldstein: We say this, that we cannot tell what we will want until we make a test to see how the figures will line up. We may have a theory, and our theory will not be worth anything unless——

"Mr. Bracelen: Precisely, sir.

"Mr. Goldstein (continuing): —until we know where we

stand on it. We have to know the significance. We do not want to burden the court with too much——

"Judge Wilkerson: There is a word that has been used [fol. 6902] from the earliest decision, that applies to the thing that you say you want to do.

"Mr. Bracelen: Precisely.

"Judge Wilkerson: There is something to that effect in an early decision, which applies——

"Mr. Bracelen: Precisely.

"Mr. Haight: We do not want to fish.

"Mr. Bracelen: That is precisely the point.

"Mr. Haight: We simply do not want to be denominated as that particular kind of fish that comes up the Illinois rivers early in the spring, from which this state gets its name, that is all.

"Mr. Goldstein: May I ask whether the terms of the offer this morning, are any different——

"Judge Wilkerson: Well, I do not think anybody could accuse you of being a sucker, Mr. Haight.

"Mr. Goldstein: May I ask whether the terms of the offer are different than those contained in this memorandum? If the terms of the offer are contained in this memorandum, we want it identified as Defendants' Exhibit D-118.

"Judge Wilkerson: You may have it identified.

"Mr. Goldstein: All right.

"Judge Wilkerson: I have ruled——

"Mr. Blackman: Your Honor, I think the whole thing——

"Judge Wilkerson: I have ruled on the whole thing.

"Mr. Goldstein: And we preserve an exception.

"Judge Wilkerson: And I have said that if counsel desire to make a motion after the documents have been received in evidence, relating to further inspection, and it is done in the proper way, and on a proper showing, I will have my associates on the bench convene at some convenient time and consider the application. But it will have to be presented in the regular order, and supported by a proper showing."

(The document was thereupon marked Defendants' Exhibit Number D-118, for identification.)

"Mr. Blackman: So that we will have the record straight, if your Honor please, I will re-offer in evidence the plaintiff's exhibits that have been submitted to the court, Ex-

[fol. 6903] hibits A-150 to A-169, both inclusive. I will also offer in evidence the tabulation of royalties, which was identified by Mr. Goldstein as Exhibit D-111. That will be Plaintiff's Exhibit A-171.

"Mr. Haight: If your Honor please, we ask that our objections already placed on the record stand to the offer at this time.

"Judge Wilkerson: Overruled. It will be understood in this case I suppose, as it is always understood in an equity case, that where the court overrules an objection, it is unnecessary to formally note an exception of record. At least in this case the point will be treated as saved, whether counsel formally notes an exception or not.

"Mr. Haight: We will be very glad to do that. Is that agreeable to you also, Mr. Blackman?

"Mr. Blackman: Oh, yes."

(The documents were thereupon received in evidence as Plaintiff's Exhibits A-150 to A-169, both inclusive, and Plaintiff's Exhibit A-171.)

Redirect examination.

By Mr. Blackman:

I was asked by Mr. Goldstein with regard to the sale to the Long Lines Department of telephone instruments in 1927. There was no sale, nor could there have been any sale to the Long Lines. Those few instruments were merely transferred on our books to the Long Lines Department accounts. The Long Lines is a part of the American Company, and the American Telephone and Telegraph Company owned the instruments before this date and continued to own them afterwards. They were simply continued on the books of the Long Lines on the same basis that they had previously been carried upon the books.

I stated in answer to Mr. Goldstein that there was no relationship between our depreciation expense that we carry on the books of the American Company and the license revenues which the associate companies pay. We do not charge up on our books any specific amount for any specific service under the license contract to any associated [fol. 6904] company, or against the license contract as a whole. My books show the license revenue received from the companies, and in an entirely separate and distinct book of records, we show the expenditures that we incur in ren-

dering that service as a whole but not allocated to that service. That is, those expenditures are carried on our books just like any other expenditures.

Mr. Goldstein asked me whether prior to December 31, 1927, the associate companies could purchase telephone instruments from the Western Electric Company; that is he said they could not purchase telephone instruments from the Western Electric Company, and I said "That is correct". I will amend my answer to Mr. Goldstein; they could purchase instruments, but they would have been decidedly foolish to have done so when the instruments were being made available to them under the license contract and they were paying for them through the license contract payment.

I was asked with regard to the experience of the Company with the so-called hand set or cradle telephones since 1927 and I said I did not have the figures, but would look them up. I have familiarized myself generally with them. I think there are now somewhat over a million hand sets in use, slightly over a million in use throughout the Bell System, or about 18 per cent, I think of all instruments in use. That is, in the six years that they have been in use they have increased to a point where they are now about 18 per cent of the whole.

I read a portion of a letter from the President of the Illinois Bell, in which this phrase occurred:

"The completion of this program during 1924 will require $7,636,000 beyond our estimated current resources, but will not require any new finances."

That was merely a statement by the President of the Illinois Bell Company that, in respect of a large construction program which he had for 1924, no further arrangements for financing that program were required, because he knew that he had loaned to the American Company at the beginning of 1924 in excess of $10,000,000, and he also knew that that money could be withdrawn from the American Com-
[fol. 6905] pany; or, in other words, that if he asked the American Company for the money, they would repay the loan to him at any time that he wanted it, and that he had, therefore, his construction program amply covered as to finances.

In answering a question about the cradle phones in use, I said that they were 18 per cent, and about a million in

number. I made an error there. The 18 per cent is right, but the number is 2,800,000 instead of 1,000,000.

I was asked concerning a contrast made by Mr. Goldstein between the rate of 5.53 which the American Company paid to the Illinois Bell in 1924 and the rate of 5.88 which the American Company customarily receives for money which it advances to the associate companies. When the American Company advances funds on demand notes, or on open account to its associate companies, on the 6 per cent basis (that is, 6 per cent less 2 per cent for prompt payment of interest monthly), it advances those funds with the full understanding that they are to go for all practical purposes into new construction and new additions to property and be permanently separated from the American Company, or that the money will be permanently invested in the Illinois Bell plant or the plant of any other associate company to which the money is advanced. That is, the American Company cannot get it back if it wants it back; it hands it out, it advances it with the understanding that the transaction is final. But on the other hand, the company receiving it has the opportunity to repay it at a later date before these advances go into more permanent financing, such as stock; if the associate company that has received the money has in its possession spare funds, that is, if there should be funds left from earnings, or from other sources, or if property should be sold, or if for any reason the associate company has money, it can repay to the American Company the advance which was made on the 6 per cent basis. But the American Company from its point of view does not expect that the money will be repaid.

Now, take the other transaction, the receipt by us of moneys from the Illinois Bell and the payment of 5.53: In 1924 we received slightly in excess of $10,000,000, and we [fol. 6906] paid the Ilinois Bell 5.53 for the money. Now, the 5.53 rate in the first instance was the cost of that money to the Illinois Bell Company, and in taking it off of the Illinois Bell's hands, we assumed the burden of carrying that money until the Illinois Bell required it in its plant. I say, we assumed the burden; that is not quite a fair statement. We relieved them of any loss on that money during the period from the time they sold the bonds until they subsequently nedeed the money in the business.

Such money as we received from the Illinois Bell, or any money that we held in New York for the companies, we had,

of course, to keep in rather liquid form, and on that class of money that we received in 1923, we received in that year 3.51 as an average on all the money held during the year. Now, that is understandable for this reason: When we had funds of that type in our possession, the money that we had loaned from the Illinois Bell with the understanding that we would repay it as they needed it, or money that we might have gotten from our stockholders to invest in telephone property with the commitment to invest it in telephone property, we did not in respect to that money have any right to speculate or to look around for some long-term investment that might yield 5 or 6 per cent, or to use for call money transactions. In fact, we have never put any money in any call money transaction. But we feel an obligation to put that money into such forms of investment as government securities and treasury certificates, and short term state and municipal paper; something that we can on a few days' notice collect on, and yet at the same time it will be an investment that embodies all of the factors of safety, integrity and maintenance of the principal. Now, on that type of money, of course, the rate that is paid is low.

So that during all of the time we were actually holding that money in our possession as money and paying a 5.53 per cent return on it, all we were getting was 3.51 on the average for all money. In 1924 we got 3.15; in 1923, 3.51.

In making up my exhibits where I show the amount of the cost of this money to the American Company and allocate a [fol. 6907] part of that cost to the Chicago area, as to whether I first give full credit for all of the money that we received, I will take, for example, the matter of holding funds available, in that category. If we are holding, say, $70,000,000 of funds available, on the average, through the year, and those moneys produce a return to us, invested as I have just described, of, say, 3.5 per cent, we give full credit for every dollar earned by the American Company on that money in computing our cost of carrying that money for the companies. In other words, if that money cost the American Company as a whole 6.8, and we earn on it 3.5, then we figure the cost as the difference between 6.8 and 3.5, or 3.3. That is the percentage which we use to determine the cost to us of carrying that money.

It is those figures which I have used in my exhibits, both for the cost of holding money available and for the

cost of temporary financing. I might say that in the case of temporary financing we give credit in our computations for the 6 per cent rate that we receive, or 5.88 with a discount for interest, so that if money cost us 6.8 as a whole on all of the money used in the business, and we receive on this money put out on the temporary financing basis 6 per cent, your percentage, or your factor of loss there is only the difference between the 6.8 and 6 per cent, or only .8 per cent. That is the only thing that I have used in my exhibits. Now, one further thing: In the matter of cost of carrying physical property, there instead of crediting any interest we credit the rents that we have on those properties.

In answer to Mr. Goldstein I gave certain figures with regard to our financing of the Illinois Bell in the year 1926. In the year 1926 we furnished the Illinois Bell Telephone Company $13,500,000, gross. There was repaid to us during that year $2,700,000, made up of four payments; January 21st we received $1,000,000; June 9th, $250,688; October 20th, $749,312; and on December 23rd, $700,000. The service rendered was the service of making available to them $13,500,000 in that year. The net amount that they took [fol. 6908] after giving credit for all repayments was $13,500,000 less $2,700,000, which would be $10,800,000.

For the year 1926 my computation, Exhibit A-169, shows that the part allocable to the Chicago area was $4,211,000. Now, that is approximately 70 per cent, which would mean about $6,000,000 was held available that year for Illinois Bell Telephone Company. The Chicago area is about 70 per cent of the entire Company, which would mean for the Illinois Bell as a whole about $6,000,000. In making my allocation for the year, I disregarded the fact that they had actually received $13,500,000 as gross and $11,000,000 as net and charged only on this $4,200,000; that is, we held a certain amount.

We arrived at that $4,200,000 in this way: We took the total money that the American Company held in its treasury in more or less liquid form available for advances, and we excluded from that an amount of $6,500,000 which we were holding for our general purposes, and we took the rest and allocated it to all of the companies on basis of a composite ratio of estimated requirements, plant investment and gross additions. In other words, we would not have held available in New York on an average through the year an amount of money equal to the total estimated requirements of the

companies. We hold as little as possible, and yet enough to see that the needs of the companies can be met at any time; and also another factor, we cannot finance any time, or any moment that we want to finance. In financing such a large undertaking as to the American Company has before it, they must pick their times of financing, so they get money on the very best basis they can get it on. So we aim to hold what in the judgment of the management is a minimum amount and yet an amount that is adequate to meet the programs of the companies as they come along without embarrassement to them; and that minimum amount or that adequate amount for meeting these requirements is allocated to the companies on the basis of a composite of the estimated requirements, gross additions, and plant in service.

In the year 1926 our average earning on money was 3 per cent straight. So what I carry in my exhibit is the difference [fol. 6909] between 3 per cent and the cost of the money in 1926 applied to this amount of $4,200,000.

The estimated requirement of the Illinois Bell for 1926 were given to us as $15,612,000.

I was asked certain questions by Mr. Goldstein with regard to the years 1923 and a part of 1924, and the last years of the period. The situation which he brought out there is not in any way typical of the conditions that existed during the period in between. The earlier period was one that involved the bond financing transaction of the Illinois Bell; that is, the Illinois Bell put out a bond issue of $50,000,000. It would have been foolish for the Illinois Bell (which had, I think, a $19,000,000 or $20,000,000 bond issue to retire) to go to all the expense of bond financing and to just have issued a $19,000,000 bond issue when at the same time it had also about $19,000,000, $18,000,000 or $19,000,000 of notes to pay for the purchase of property. In order that it would have a round figure for a bond issue and have money for the future, a bond issue of $50,000,000 was deemed wise at that time and that left it temporarily with funds upon which it was paying 5.53. We took those funds at the same rate and relieved it of any possible loss on the funds until they needed them. We fed them back in small amounts over the year 1924, and, at the same time, in safeguarding that money we had the obligation to keep it so invested that it was available at any time the Illinois Bell wanted it.

The period, say, from 1929 to 1931, so far as the Illinois Bell is concerned, was also a very unusual period. I recall

very distinctly coming to Chicago (I think it was early in the summer of 1929) and discussing with Mr. Abbott the matter of financial requirements for the latter part of the year 1929, 1930, and the future. Then the depression had not yet come into the picture. It was thought by the President of the Illinois Bell that with very heavy construction requirements ahead, as he then saw them and had every reason to believe that he would need them, a forty-million dollar stock issue would not be an unusual financial program, but that the program should be spread out over the [fol. 6910] period in such a way that he would not receive the money that was paid in on the stock until after he had borrowed money from the American Company and carried it for brief periods on a 6 per cent basis. It was deemed wise to put out the $40,000,000 issue, and that was announced, I think, in the summer of 1929. Approval was obtained from the Commission, and the issue was announced. The first installment was, I think, $20,000,000 or $19,000,000 (it was a 50 per cent installment). The American Company's first installment amounted to nearly $20,000,000.

Now, up to that time the Illinois Bell had borrowed from us nearly $20,000,000, so that when the first installment was due the funds that they had already borrowed from us were simply repaid to us as an offset against the first installment on the stock, and the notes were cancelled. Now, if Mr. Abbott had decided at that time to put out two stock issues of twenty million dollars, when the first installment of nineteen million odd was paid, if the stock had then been issued, it would have been on the same basis as any other stock that was outstanding. But the stock was not to be issued until the forty million was paid, so that there was paid on the installments the 8 per cent interest which was paid to all stockholders.

Now, it was the plan that between the payment of the first and second installments there would be required by the Illinois Bell something in the nature of more than ten million dollars, which we were to advance on notes at 6 per cent. We did advance money, but the business depression came in and the Illinois Bell's needs were not as great, so that by the time the second installment came into the picture we had, I believe, advanced only between two and three million dollars. I am speaking now of early in 1930. Now, the second installment was due, I believe, in June or July of 1930. The Illinois Bell did not need the money it had asked

for, because of the depression. Another situation crept in the picture, and that was the inability of the Illinios Bell to pay its taxes in the City of Chicago, with the result that for the years 1930 and 1931 we found ourselves with from eight [fol. 6911] to ten or twelve million dollars of funds that we had taken off of the hands of the Illinois Bell and carried for them at 6 or 5.88 per cent, when the American Company was not getting over 2½ and 3 per cent on the money.

At page 2810 of the record I am quoted as having made this statement: "All those amounts they had the convenience of paying back to us through the years, and reducing their interest charge $2,700,000. Now, in my estimated requirements I show that their requirements were $13,500,000." I am not correctly quoted there. That situation refers to the year 1926 and what I said was this: "That we had advanced them, the Illinois Bell, $13,500,000, and had given them the opportunity of repaying any amounts that they might have available, and that they had repaid during that year $2,700,000, thereby reducing their interest charges." The interest charge was nothing like $2,700,000. The $2,700,000 refers to the principal amount paid back of the thirteen million five in order to save interest thereon.

I was asked concerning the course of the transaction when the American Company bought a patent and gave a license to the Western Electric under that. In reading the record I find that apparently I did not state that whole transaction. The question that was asked me was that if the American Company paid, say, $250,000 for a patent, and gave the Western a license thereunder, whether the Western paid the American Company $250,000, and, if so, what was done with the $250,000. I should have made this distinction: that under any patent which the American Company buys, the Western Electric receives a license, but that the Western Electric reimburses the American Company only for the cost of acquiring the patents in those cases where the patent is one that should go to the Western. For example, a patent pertaining to telephone apparatus and appliances, something with which the Western deals, should go to the Western, and, in that case, if the American Company buys such a patent, it bills the cost of it to the Western and gives the Western a license under that patent, the Western reimbursing the American Company for the full cost. But if the

[fol. 6912] American Company buys a patent which is related to the telephone, or anything entering into transmission, why, the cost of that patent under the license contract is borne by the American Company, and no part of it is billed to the Western Electric, but the Western is given a license to manufacture under that patent.

Those charges for purchasing patents for the years 1923 to 1931 that were shown on the exhibit of the expenses of the Law Department are expenses that were paid by the American Telephone and Telegraph Company and were not passed on to the Western Electric, because anything that was passed on to the Western Electric was repaid by the Western Electric and has been credited in my costs, with the exception of a few small amounts which are shown on the royalty statement D-110, I believe, or 111.

I was asked whether the reason I had included the plant investment as one of my factors in making this allocation of cost of money was not because the Illinois Bell had very small estimated requirements and a large plant. It is not a fact that it did have very small estimated requirements. The estimated requirements of the Illinois Bell are relatively as large as the requirements of any other company. And, of course, they may vary from year to year. Some years they may be slightly below, other years slightly above, but, taking it throughout the period, the Illinois Bell's requirements are proportionately just as large as any other company's requirements.

I was asked concerning a forty-eight million dollar dividend of the Western Electric to the American Telephone and Telegraph Company, or received principally by the American Telephone and Telegraph Company as its principal stockholder. As I understand the situation, one major source of that money was the sale of the International Western Electric property. Then, in addition to that, I believe there were some additional earnings that the Western had accumulated in the non-telephone field over a period of many years in the past, so that this $48,000,000 was just a house cleaning by the Western in connection with the sale of [fol. 6913] the International Western Electric property and certain non-Bell earnings, or non-telephone earnings that had accumulated over a great many years in the past.

The sale of the International Western Electric took place about 1925. At that time the International Western Electric had a surplus on its books which it had built up from

undistributed profits throughout the period of its existence. Just what that surplus was, I am not in a position to say. I know it had a substantial surplus. In that sale, of course, that surplus was taken into account and paid for by the purchaser and when the property was disposed of the surplus was distributed to the American Telephone and Telegraph Company through this dividend, and this forty-seven million dollar dividend, I may say, was included in the surplus that I have credited in my computation of average cost of funds. That is, every dollar of this forty-seven million dollars has been used to reduce the average cost of funds used by the American Company in the business, and that is also true in respect of the fourteen-million-dollar item shown on our books as the result of the sale of instruments. It has been applied to reduce the cost of money used in the business.

In developing my cost of money, I used, largely, the stock of the company and the surplus. I was asked concerning the stock issues of the company. I have prepared a tabulation which shows all of the stock issues and what was received for those issues. That is the sheet marked for identification Exhibit A-172.

This statement (A-172) is an analysis of the capital stock of the American Company, to show to whom it was sold, how it was sold, in what connection and substantially when it was sold, and the consideration received, as well as the amount of premiums realized in excess of par value. For example, in the upper section there is a block (a), sold to American Bell Telephone Company. The first item of $17,500,000 was sold for money. I may say that the American Telephone and Telegraph Company was organized in 1885, and from then to 1900 all of the stock that was in issue was taken by the American Bell Telephone Company. The first block of $17,000,000 was [fol. 6914] sold for cash. The next block of $2,500,000 was issued for a franchise, the third block, put out between 1889 and 1900, was issued for cash, and in 1899 to 1900 there was issued $51,772,600 par value to acquire the stock of the American Bell Telephone Company; that is, two shares of American Telephone and Telegraph Company stock at a par value of 100 were issued for each share of American Bell Telephone Company stock, which stock had a book value in 1900, when this transaction took place, of $228 a share.

In the second block is shown, first, the stock issued in conversion of bonds. There were four convertible bond issues under which we finally issued $426,952,100 par value of stock for a consideration of $643,116,764, or at a premium of $216,164,000, roughly. We got $216,000,000 more than par for our stock in that case.

Now, I may say, as regards the first block at the top of the page, we received more as a consideration than $83,-883,000, but those who were responsible for the accounting back in those days did not record the excess as a premium and the excess is in our surplus accounts.

Then, we exchanged $6,000,000 of American Telephone and Telegraph Company stock for $7,500,000 of Bell of Pennsylvania stock. The American Telephone and Telegraph Company stock at that time was paying an 8 per cent dividend, and the Bell of Pennsylvania stock was paying a 6 per cent dividend. Then, we issued $15,000,000 in exchange for the common stock of the Teletype Corporation in 1930, and we issued under circular offers to stockholders, both through subscription and by selling unsubscribed, $1,148,976,600 par value at a premium of $5,016,394, and under our Employee's Stock Plans the last ten years we have issued $185,024,400 of par value at a premium of $30,-887,527. Now, the figures in the last line at the foot of the page correspond with the figures in the published annual report to the stockholders for the year 1931.

With regard to this Teletype transaction, we have received cash, or the equivalent of cash, for the entire $30,000,000.

(Plaintiff offered in evidence document marked Plaintiff's Exhibit A-172.)

[fol. 6915] Recross examination.

By Mr. Goldstein:

Prior to 1927, the associated companies could purchase telephone instruments from the Western Electric if they wanted to; that is my understanding.

"Q. I would like to read to you from City Exhibit 60, the contract of 1882 between the American Bell Telephone Company and the Western Electric Company, and I will ask you, after I have read certain sections, whether you are still of the same opinion, that the licensees could purchase telephone instruments from the Western Electric. Page 206

of the record, volume 6, provides that the first party,—and the first party is the American Bell Telephone Company,—agrees that it will employ the said second party, that is, the Western Electric, during the existence of this contract, to manufacture telephones required by it, the American Bell Telephone Company, whether for use in the United States or for export, upon the terms and conditions following, that is to say: and then there are provisions as to the price, and so on, and then the last section is,—or the second to the last section is, 'Except as in this article provided for, the second party shall not engage in the manufacture of telephones within the United States'. Now, if you care to read that, you may.

"A. I can't get anything out of that.

"Mr. Blackman: What was the date of that contract?

"Mr. Goldstein: 1882.

"Q. Do you know of any modification of that agreement?

"A. Well, you have read such a sketchy section of it there and I am not an attorney."

I have read the contract between the American Bell Telephone Company and the Western Electric. I am not competent to pass an interpretation of this contract. My opinion is just as I have stated it, that there was nothing that would prevent the associated companies from buying telephones from the Western Electric prior to 1927 if the associated companies had wanted to be foolish enough to do so. I did not take those agreements between the Western Electric and the American Bell Telephone Company and the Ameri-[fol. 6916] can Telephone and Telegraph Company into consideration at all. I am stating what was my understanding of the situation. I have read the contract between the manufacturer and the American Telephone and Telegraph Company and I know of nothing in it that would change my opinion. My opinion is with such knowledge as I have of the situation.

I said generally the estimated requirements of the Illinois Bell were relatively as large as those of any other company in the System. I didn't say they were larger. In order to check that opinion of mine that it was relatively as large, it would not be necessary to check the estimated requirements of each of the licensee companies as compared to the total. All you need to do is to look at

C. R. 13 compiled by my department, which defendants have had available for many months.

C. R. 13, as I have stated before, was compiled from the provisional estimates together with other data, so unless you accepted C. R. 13 you would go back to the provisional estimates of the other companies, and if you didn't accept the provisional estimates, you would have to go back to the basic data of the company. At least you would have to use the provisional estimates if you didn't accept C. R. 13.

There are twenty-five companies in the System that we finance. You would not have to compare the Cincinnati Suburban, I think, because they borrowed very little from us. I have seen people who could make that comparison and keep all the figures in mind without using a pencil. I don't know whether I could.

The gross advances by the American Telephone and Telegraph Company to the Illinois Bell in the year 1926 were $13,500,000. I would say that is an average condition. If you will look at 142-C, you will find the figures stated there. I said those years where the advances were made to the American Telephone and Telegraph Company were unusual financial relations with the American [fol. 6917] Telephone and Telegraph Company, because they are the outgrowth of unusual conditions existing in those years.

The gross advances which the Illinois Bell Company asked the American Company to borrow from it through the year 1931 were $17,620,702, of which the American Company in that year paid back a substantial sum in thirteen different transactions. The Illinois Bell asked the American Telephone and Telegraph Company to borrow $17,000,000 from the Illinois Bell, or to put it this way, the Illinois Bell said, "Here we have $17,000,000 that we don't know what to do with unless we put it into banks and get what we can for it, 2 or 3 per cent. Will you take it?" We said, "Yes, we will take it, and we will pay you 6 per cent on it, or 5.88."

That money was not the proceeds of the sale of a stock issue. There might have been in the very early part of the year a little left from the stock issue, but in 1931 the large amounts left with the American Company were largely due to the fact that the Illinois Bell could not pay its taxes in the City of Chicago. I am talking about the whole tax situation. The tax bills had not gone out. The

company had the money in the bank ready to pay. It could not use the money and asked the American Company whether the American Company would take it on a 6 per cent basis and we said yes. We didn't want it. It would have been the finest thing that could have happened if we didn't have to take it or if we were not asked to take it.

The Illinois Bell did not issue any stock in 1931.

In the year 1930 the Illinois Bell left with the American Company $23,022,185. That is, the gross amount of money which the Illinois Bell asked us to carry for them and to borrow from them and pay them 6 per cent interest on, was $23,022,185.

I started to explain a while ago when Mr. Blackman was examining me, where this money came from, and I think I gave about half the transaction. The second stock installment on the 1929 offer was $9,925,825, and was payable on January 2, 1930.

That is the forty million issue. At that time the Illinois [fol. 6918] Bell had borrowed from the American Company $2,200,000 in notes, which it paid off. They had then left $7,725,000, which was left because the business depression had come into the picture. They asked the American Company to take that $7,725,000, and then in February they left with us another $3,000,000; where they got that money, I don't know, but I presume it was money that they had available for taxes, and couldn't use it. They asked us to take it. Then in February, on to June, they called back from the American Company, in nine different transactions, quite a large amount of the money they previously had with us.

Now, then, in June of that year, they borrowed $700,000 for a day or two, and paid that back. Now, the last of the three installments on this 1929 stock offer was due on the 1st of July, 1930, $9,925,825. Now, the business depression had gotten so bad that up to that time, between the second installment and the third installment, the Illinois Bell did not have to borrow any money from us, and they asked us to leave with us all but $2,000,000 of that installment. We paid back the $2,000,000 in cash, and they asked us to hold $7,900,000 for them until they needed it. And from then to the end of the year they left with us another four million odd, making up in total money left with us that year, which we were to carry for them, conserve for them and invest safely for them, and at the same time do what no other

borrower would do, give them 6 per cent on it, $23,022,000.

The explanation of why the Illinois Bell had to issue this stock with the depression coming on is as follows: In 1929, when this stock offer was put out, nobody knew of the depression; we had come to a new high level. When you put out a circular offer to all stockholders (and there are a number of minority stockholders in the Illinois Bell Company) you are presumed to live up to it; and the circular put out in 1929 called for a payment in December, 1929, one in January, 1930, and one in July, 1930. Now, you are presumed to go through with a circular that you offer to your stockholders and that was just what was done in this case. The Illinois Bell Telephone Company never asked the American Telephone and Telegraph Company [fol. 6919] to defer the issue of stock. They could have asked it, but it would have been very bad business to have done so. It would not have saved 2 per cent on $40,000,000, as $20,000,000 of that sum had been wiped out entirely by the first installment.

There was a stock issue of the Illinois Bell Telephone Company in 1927. The first payment was due on the 15th of January, amounting to $14,887,350. Previous to that time, that is in 1926, the Illinois Bell had borrowed from us $13,300,000; that is the amount of debt that the Illinois Bell owed us at the end of the year. They applied the $13,300,000 against the $14,800,000 of the stock installment, and had a balance of $1,552,700. They asked us to keep that for them, so that they did not have to have the burden of carrying it at 2 or 3 per cent in the bank. And we did, we paid them 6 per cent, and within a month thereafter, they drew it away from us. They asked us to keep this on the 15th day of January, and on the 3rd of March they called for $552,700, and on the 31st of March they called for a million, so that cleaned up that transaction. Now then, on the 31st of March they borrowed another $1,200,000, which they repaid on the 20th of April. On the 2nd of May, they borrowed $500,000, which they repaid on the 21st of May. On the 1st of June, they borrowed a million, and on the 13th of June, $750,000.

Now, on the 30th of June, there was a stock installment of $7,443,675 and the Illinois Bell owed us $1,900,000. They cancelled the $1,900,000, and kept some of the money and asked us to take $3,500,000 and carry it a little while for them. We did, and they began to draw it down in August.

In September, there was another stock installment. There was no debt to cancel. Of that they asked us to keep $5,250,000, which they drew down between the 1st of December and the end of December, leaving the account at the end of the year $315,632 with the American Company.

Now, the gross cash that we held available for the needs of the Illinois Bell Company that year was, in my judg- [fol. 6920] ment about $18,000,000, $17,980,000. That was the service we rendered to them.

In the year 1924 there was a stock issue installment of $1,979,500 on the 31st of March. That was paid the Illinois Bell in cold cash, as they wanted it that way. They left with us on the 2nd of January, $1,000,000. On the 4th of March we took back the Liberty Bonds, which were redeemed by the Government, and the Illinois Bell left $11,235,462 of cash with us, which we conserved for them and on which we paid them 5.53 per cent. On the 31st day of March they left another $793,000 with us. Of that money they drew down during the year, in eleven transactions, $10,584,632, leaving the American Company still owing on loan from them at the end of 1924, $2,443,944. That was carried over into 1925 and was repaid by the American Company in small amounts early in 1925.

In 1923 the Illinois Bell loaned the American Telephone and Telegraph Company amounts ranging from $10,700,000 to $12,300,000. The American Company loaned the Illinois Bell $10,573,000 the first part of the year. You have got to take the year as a whole. Part of that loan was converted into stock and part of it was advances; nearly $3,000,000 were advances.

The first half of 1923 and the year 1926 are not the only years in which the American Telephone and Telegraph Company loaned money to the Illinois Bell. The American company practically advanced money through all the years to the Illinois Bell. When it advanced money it did not necessarily have balances on hand as a credit. It might have had at one part of the year small balances on hand and those were handed back, and then for a while the American Company would finance the Illinois Bell, and then the Illinois Bell would begin to pay back again.

"Q. Now on your Exhibit A-164, in determining the cost of funds as a charge against the license contract payments, you included the interest paid on loans from associated companies?

[fol. 6921] "A. I did not charge anything against the license contract payments."

I simply endeavored to figure the cost of the license contract service to the American Company and its portion allocable to the Chicago area. In that case I took the cost of funds as a basis of my determination of costs. The Chicago area should bear its proportionate part.

The American Telephone and Telegraph Company holds this money available for all of the companies in a single treasury, it tags no dollars, and it could not, by the very nature of the situation, say at the beginning of the year, "We will take so much for the Chicago area, and so much for the New England Company, and so much for the Pacific Company." We have one common treasury of funds held available and that is available for the drawings of any company. The reason we cannot do it any other way is that the companies have such wide latitude through the year in cancelling the requirements they state to us at the beginning of the year and obviously the American Company cannot pick out a single company and say, "We hold so much for you, and we hold so much for you, and so much for you," because the companies have an opportunity to cancel ad lib their statement of requirements.

The money that came from the Illinois Bell to the American Telephone and Telegraph Company went into its treasury and that, together with moneys from all other sources, was held for all licensees, including the Illinois Bell. There were several licensees outside of the Illinois Bell that had these unusual transactions during this period where the American Telephone and Telegraph Company was asked to borrow money from the associated companies, but there were at the time none that had the same benefit of getting 6 per cent on money which we had to carry at 2.5 and 3 per cent. City Exhibit 142-F is not a statement of all the temporary funds loaned to the American Telephone and Telegraph Company by the associated companies. This is, in the majority of cases, proceeds from public financing.

The Illinois Bell case in 1930 was public financing, be-
[fol. 6922] cause the Illinois Bell has, I do not know how many minority stockholders, and this stock circular was a public offering. The money which the Illinois Bell left with us was the result of a public offering of stock.

Where a company had surplus funds that were obtained from any source other than public financing, they are not shown on City Exhibit 142-F, but are included in Exhibit A-164.

In 1923 the Illinois Bell had, roughly $19,000,000 of notes to pay for property in connection with its purchase of the properties of the Central Union. I have not a definite figure in mind. In 1923 it repaid the Central Union notes out of a bond issue.

We might have made a few dollars one way or the other during the period 1923 to 1931 on the sale of these temporary and government securities. When we made such a profit, it is all in this rate that I gave ranging from 2.3 to 4 per cent through the years.

"Q. Well, as I understand it, it does not include a profit on the sale of securities in 1923 of $1,471,000; in 1928, $158,870.86; and in 1929, $539,652?

"A. Well, I don't know what you are reading from.

"Q. I am reading from the Annual Reports of the Interstate Commerce Commission, your surplus adjustments to the Interstate Commerce Commission show excess of sales price over book value of securities sold $1,471,048.90 in 1923."

That is simply reporting to the Interstate Commerce Commission on the basis that we are required. If we bought and sold government securities, we would consider any profit in connection with this surplus as a part of the rate on them. Every dollar of profit that has ever been made on government securities has been composited in the figures which I gave as showing the rate of return which the American company earns on temporary cash invested.

The Long Lines Department makes actual payments for license contract services to the American Telephone and [fol. 6923] Telegraph Company. The Long Lines Department is a separate department, and its earnings and expenses are kept separately, and out of its earnings it transfers to the General Department the same license payment of 1½ per cent of its gross revenues. Now, of course, you cannot pay yourself anything. In one sense, it is a bookkeeping transaction. In the other sense, considering the Long Lines as we do in this case, as in the same category as an associate company, it becomes a real transaction.

We do not consider the sale of the telephone instruments by the American Telephone and Telegraph Company's General Department to the Long Lines in the same category because that is a matter of bookkeeping.

"Q. That is, the sale to the Long Lines is a matter of bookkeeping, but the Long Lines transfer of funds to the American Telephone and Telegraph Company is not a matter of bookkeeping, but is a real one?

"A. Well, I told you a few minutes ago that there was a transfer of assets from one account to another account within the same company."

I said very distinctly if you look at this thing you cannot pay yourself any money, you do not have any more when you quit, but if you look upon the Long Lines as we have in this case, as a separate unit, then your transfer of money does take on some reality.

"Q. But is there a separate unity in your consideration of the sale of the telephone instruments?

"A. I have here for this cost study treated the Long Lines as if the Long Lines were a separate entity.

"Q. Then the sale of the telephone instruments should be considered——

"A. No, it has nothing to do with it.

"Q. Nothing, all right.

"A. That is a matter of routine accounting on my books."

In connection with Exhibit A-172: the American company issued one share of its stock for each share of [fol. 6924] Teletype stock, and then sold the Teletype stock to the Western Electric for $30,000,000. We took the Western's note for the $30,000,000 for the time being and the Western has paid that note off substantially since that time.

In connection with the sales of stock under the Employees' Stock Plans with premiums in the period 1923 to 1931, in the same year there were issues of stock at par in accordance with the terms of an offer and we also issued to employees stock on the completion of their subscriptions under the plans on the installment basis. Then, in the same year, we would issue stock in conversion of bonds. The price at which we would convert for bonds, say in 1929, was above par. The stock that was issued to the

stockholders was at par. The stock that was issued to the employees was above par.

I think Exhibit A-164 is very clear. What I have done, I have said that there are so many shares of stock outstanding; there are so many dollars of dividends paid on that stock, and then to that par value I have added the premium and to the sum of the two I have added the surplus, and I have related the dividends paid to the sum of the par value capital stock premiums and surplus. It has nothing to do with Employees' Stock Plans or the convertible bond issue or anything else.

The company did not pay 9 per cent dividends. The stock stockholders got a $9 dividend on the stock after it was issued. They paid $100 for an additional interest in the business.

"Q. And they got $9 on the additional interest for each $100 of additional interest they paid for?

"A. No, that $100 was added to whatever they had, and they got the $9 on whatever the average value of the share was worth.

"Q. Then, if, on January 1, 1924, I owned a thousand shares of American Telephone and Telegraph Company stock and I was given the right to subscribe for a hundred shares more, I paid a hundred dollars a share for the hundred shares, and I received $9 on each share of stock of the additional one hundred as well as on the old, is that correct?

"A. No, that is not correct. Take your facts as you find [fol. 6925] them. You have had a thousand shares and the thousand shares had a book value——

"Q. Paid me how much in dividends?

"A. Just a minute. (Continuing.) The thousand shares had a book value of 150.

"Q. What dividend did it pay?

"A. Just a minute, just a minute. If you had a thousand shares, and the shares had a book value of $150 a share, the dividend was $9, your return was 6 per cent. Not 9 per cent, it was 6 per cent.

"Q. All right.

"A. Now, then, if the company asked you to take an additional interest in its business, and they offered you an additional interest for $100 a unit of interest, and you bought a certain number of units, you would simply add

that investment to that which you already have, and the dividend that you thereafter receive would be a return on all of your investment, and it would not be $9 on the additional amount put in, at all.

"Q. Will you please stick to this example, and we will get the facts? You had a thousand shares on January 1st, on which there was $9 a share paid?

"A. What was the book value of it? What was the book value of it?

"Q. The book value was X dollars or Y dollars.

"A. Well, I can't answer your question on that basis."

Exhibit A-164 includes every dollar ever brought into the business for capital funds.

(On permission of the Court, witness corrected a former statement, as follows: instead of the Illinois Bell issuing a circular in 1929, the circular was issued in December, 1928.)

. . . . . .

[fol. 6926] A. D. Grote, called as a witness on behalf of the plaintiff, having been first duly sworn, testified as follows:

Direct examination.

By Mr. Blackman:

May 24, 1932.

My name is A. D. Grote. I am Chief Accountant of Illinois Bell Telephone Company. I have held that position about two years. I have been connected with the Illinois Bell almost 22 years, all in the Accounting Department. My duties as Chief Accountant are to supervise the preparation of general accounting methods, care for the cost accounting work, statistical reports, and make special studies. I supervised the preparation of the document marked for identification as Plaintiff's Exhibit A-180. It shows the estimated annual additional cost to the Illinois Bell Telephone Company if all of its capital stock had been held by the public instead of chiefly by the American Telephone and Telegraph Company.

In estimating the number of stockholders that the Illinois Bell would have had under those circumstances, I assumed that all of the residents of the state of Illinois now holding

American Telephone and Telegraph Company stock might be stockholders of the Illinois Bell Telephone Company and prepared this first statement on the basis of an average holding of 15 shares per stockholder. That is the average [fol. 6927] holding of the stock of the American Telephone and Telegraph Company for the residents of the state of Illinois. Then I assumed that the average holdings of all of the shareholders of the American Telephone and Telegraph Company might be the maximum number we might expect the holders of the Illinois Bell Telephone Company to have, and prepared the second statement on that basis; that is, about 30 shares per stockholder, which is the average shareholding for the holders of the American Company throughout the country.

The reason for the difference between the average shareholdings in Illinois and the average shareholdings throughout the country as a whole is that there is a greater number of larger holdings in the eastern section of the United States and in New England. In the central group of states, that is, Michigan, Wisconsin and so forth, the holdings of the American stock average about 20 shares per stockholder.

The figures shown in Column 1 of this exhibit is the estimated number of stockholders based on those 15 shares per holder, in the state of Illinois. I developed the figures in column 3, headed "Additional cost of maintaining record of stockholders, transferring stock," etc. I also developed the figures in column 4 and I used the schedule of charges set by the Corporate Fiduciary Association, principally. Column 5 is just the sum of those two.

This sheet marked Plaintiff's Exhibit A-181 for identification is the one I said I prepared on the basis of 30 shares per stockholder. This sheet is prepared in a manner exactly similar to the one that I have already described. The sole difference is that I have assumed a holding of 30 shares per stockholder instead of 15, as shown on the previous sheet.

I supervised the preparation of these papers marked collectively Plaintiff's Exhibit A-182 for identification. On this third page of this exhibit I developed the figures which you used in columns 3 and 4 of the two preceding sheets. The first item on the first page, $10,000, is the cost of having an annual audit made by an outside concern to meet the customary requirements of the Chicago Stock Exchange. That is an expense that we do not have now. The next item, [fol. 6928] $12,000, in the first column to the left, and $6,000

in the other column are the registrar's fees for transfers. I obtained the individual charges per transfer from the schedule of charges set by the Corporate Fiduciary Association. The next item, $88,000 and $44,000 is transfer agent's fees. I developed those figures in our office and I used also in that connection the schedule set by the Corporate Fiduciary Association. These are just the compilation of the individual amounts that the Corporate Fiduciary Association sets forth as their schedule of rates for doing this kind of work for large corporations.

The first figure on the second page, "Cost of Stock Certificates, 15 cents per certificate," I based on the present cost to us of the stock certificates, taking a discount for using a greater quantity.

The next item, Dividend Payment, of $40,000 and $20,000 I developed from our experience. That is our own experience in doing similar kinds of work. For annual notices and proxies I used the cost of the forms, the envelopes, postage, and so forth. That is merely adding together a number of small items of cost with which I am familiar.

For the last item, Annual Reports, I used our past experience on annual reports, and took a liberal discount for a much larger quantity of them.

The total figure there is $169,500, in the column to the left, and $89,750 in the column to the right. I deduct from that $3,000, which is the present cost to us of doing work of that kind with the very few stockholders that we now have. The difference is my estimation of the additional cost which we would have to incur if we had to do this work for ourselves, and had our own stockholders, instead of having one big stockholder who splits up the stock among many others, and does this kind of work for me. These figures that I have been talking about are summarized and appear on my first and second exhibits in column 3. The figures in column 3 come entirely from the figures shown on this third exhibit about which I have just been talking.

[fol. 6929] The figures in column 4 are the cost of handling additional stock issues. I took into account the cost of issuing warrants, registering those warrants, receiving the money, making a record of it, in connection with subscriptions, issuing the stock certificates, and registering the stock certificates, mailing them, and so forth. The items are set forth in detail on the third page of this third exhibit of mine.

In my opinion these figures that I have set forth in my

first and second summary exhibits, and the detailed exhibit, No. 3, are all fair and reasonable figures to indicate the additional cost which the Illinois Bell Company would incur if it had the number of stockholders which I have dealt with on these sheets; they are conservative figures. In my opinion these additional amounts set forth here are fair annual charges to consider as additional costs which the Illinois Bell would incur in such situation.

Cross-examination.

By Mr. Goldstein:

These exhibits are predicated upon the investor in the Illinois Bell having only 15 shares in one case and in the other case having 30 shares apiece.

"Q. Yes. Now the American Telephone and Telegraph Company in 1923 had approximately $70,000,000 invested in the Illinois Bell; if the American Telephone and Telegraph Company only had 15 shares of the Illinois Bell, on an investment of $68,000,000—or—$68,000,000—that would be 680,000 shares. How many companies would the American Telephone and Telegraph Company have had to be an investor in to have that sort of an investment? It would be about 40,000 companies, would it not? Is that right?

"A. Roughly, yes."

I have never figured how much the cost to the American Telephone and Telegraph Company would have been if instead of having one company in which it had an investment of $68,000,000, it had that investment spread over 40,000 companies.

[fol. 6930] I assume that the American Telephone and Telegraph Company having an investment equivalent to its investment in the Illinois Bell, but spread over 40,000 companies, would have had to have more bookeeping to keep track of that investment than it has to take care of its investment in one company. I assume it would have had to have more supervision over those companies. I would assume that, in order to take care of an investment in 40,000 companies, it would have to have a large number of stock certificates.

"Q. All right. It would have to have a large number of stock certificates to take care of. What else would it have to take care of—what else would it have to have?

"A. Why, I have not gone into that subject, Mr. Goldstein."

It probably would be fair to assume they would have to have additional employees in order to take care of the investment. It would have other items of expense also such as supervision over those companies.

"Q. And its risk in these various companies would be much greater than it would be if it was concentrated in one company over which it had control, and could control its management, would it not?

"A. You are taking me away——

"Mr. Blackman: I think, sir——

"A. —quite a ways.

"Mr. Blackman: This witness has testified to nothing about the American Telephone and Telegraph Company.

"Mr. Goldstein: But then—no, but this witness has testified as to the benefits to the Illinois Bell, as an investor, and I am trying to get the other side of the picture from him as to what benefit it was to the investor, under those circumstances, to have this situation. He has made an assumption here that is a pure speculation.

"Now I just want to test him as to how far his speculation goes; he has made an assumption, and I am trying to get the consequences of the assumption.

"Judge Wilkerson: Can you answer that?

[fol. 6931] "The Witness: No, sir, I cannot.

"Mr. Goldstein: If the American Telephone and Telegraph Company were an investor in 40,000 companies, would it require the attendance in each of those companies at meetings, or supervision of those companies in one form or another?

"A. I do not believe that is a question I can answer.

"Mr. Goldstein: All right."

I have not gone into the question as to what benefit the Illinois Bell was to the American Telephone and Telegraph Company by having all of the investment of the American Telephone and Telegraph Company in one company, instead of having it scattered into 40,000 or 50,000 companies.

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[fol. 6932] R. H. Gregory, recalled as a witness on behalf of the plaintiff, having been previously duly sworn, further testified as follows:

Direct examination.

By. Mr. Thompson:

May 24, 1932.

I am the same Mr. Gregory who has testified before in this cause. It has always been the practice of the Western Electric Company to give preferment to those employees who have been laid off, when business conditions of the company call for additions to their forces.

The exhibit which has been identified as Plaintiff's Exhibit A-193 entitled "Western Electric Company Pension Fund, Comparison of Charges to Operating Costs, with Required Contributions" was prepared under my supervision and direction. This exhibit shows for each of the years, and for the total of the period 1916 to 1931, in the first column, the charges to operating costs for pension accruals. In the second column it shows the amounts year by year, and in total, of the required contributions as computed by Dr. Hunter, as shown in Exhibits A-147 and A-148, column C. In the last column it shows the excess of the required contributions, over charges to operating costs year by year, and in total; and at the bottom of the exhibit is shown the amount of each of the figures, or the columns, under each of the headings of the columns, for the years 1923 to 1931, inclusive. The amounts shown in column 2 of this exhibit under the total charges to operating costs are the amounts [fol. 6933] which were included in my Exhibits A-77, 78, 79 and 80, on account of pension fund accruals.

The Western Electric Company in the period 1926 to 1931 charged to operating expenses a lesser amount by $742,000 than the contributions which it should have made as shown by Dr. Hunter's testimony.

The actual fund of the Western Electric Company for service pensions, as of December 31, 1931, was $34,900,000. The reserve which would have been required in accordance with Dr. Hunter's Exhibit A-147 was $59,027,000.

In the year 1925, the Western Electric Company made a charge to expenses in our non-Bell business of $1,400,000 on account of pension accruals for the employees of the Supply Department of the Western Electric Company. This item entered into the expenses included in Exhibit A-78 and 80, showing the earnings on non-Bell business. No part of this sum of $1,400,000 has ever been included in any of my exhibits dealing with the Bell business, or has

that amount been charged in whole or in part to expenses incurred in connection with Bell business.

There are certain changes and corrections which I desire to make in the transcript of my testimony on cross-examination. I have prepared a list of those changes and corrections in exhibit form.

(It was agreed that these corrections be made, in accordance with this sheet subject to defendants' right to question witness.)

Since I was last on the witness stand, figures have become available which show the earnings of the Western Electric Company on its Bell business expressed in percentage of sales and in percentage of average investment for the first three months of 1932. Those figures show that during the first three months of 1932, there has been a loss of $1,600,000, which is 4.2 per cent on the sales, and 2.4 per cent on the investment. I am speaking of the Bell business. By extending this three months' experience for the full twelve months this would show a loss of $6,400,000 for 1932 on the Bell business. In my opinion the figures for the first quar- [fol. 6934] ter projected as indicated are not fairly representative of the loss which we may expect on the Bell business of the Western Electric Company for the year 1932; in my opinion that is the minimum loss that we may reasonably expect for 1932. It may be very much greater.

The instrument identified as Plaintiff's Exhibit A-194 was prepared under my direction and supervision. It shows the earnings of the Western Electric Company on Bell business, expressed in percentages of sales, and in percentage of (a) average investment, and (b) average investment less amount of depreciation reserve account, 1916 to 1932, inclusive, and for each of the years; and also it shows for the period 1923 to 1931, inclusive, and 1923 to 1932, inclusive. The Western Electric Company made in its Bell business for the period 1923 to 1931, 7.1 per cent on average investment in plant. On the same basis, the Western Electric Company's earnings on its Bell business for the period 1923 to 1932, will be 5.8 per cent.

The Western Electric Company made in its Bell business during the period 1923 to 1931, 9.4 per cent on average investment less the depreciation reserve account. On the same basis its earnings will be, on its Bell business, 7.9 per cent for the period 1923 to 1932.

(Plaintiff offered Exhibits A-180 to A-194, inclusive, in evidence. Objections reserved until after cross-examination.)

Cross-Examination.

By Mr. Goldstein.

May 25, 1932.

Among the corrections to my testimony was the following: "And that would not necessarily be the spot labor rate paid at that particular moment?" The answer should be: "The standard labor costs have as their basis the piece rate currently effective on the operation for which the standard cost is being computed."

[fol. 6935] The standard labor cost that is included in the total standard cost is the piece work rate that is in effect currently at the particular time. Of course, those piece work rates may be changed from time to time, and it would not necessarily follow that the standard costs would be changed, at that time. But the attempt is at the time that the standard rates are made, that we get as near as possible to the current cost of the labor, and the current cost of the loading, and the actual cost of the article, except for the item of material, and over a long period of time the material item is the actual cost. Let us assume that on January 1st, the current rate of piece work is X cents and the standard cost for that item is based upon X cents for the labor; now, the standard cost of that item would include that X labor until the next standard cost study is made. Between the time when the first standard cost study is made and the second standard cost study is made, there may be changes in the current piece rate from X to Y. So that our standard cost for a particular item does not necessarily change each time that we have a change in the current piece rate.

The standard cost study at the time it is made and the standard cost rate for labor is the piece rate at that time. That continues until we make a new study and at that time again we apply the then current piece rate. But you want to bear in mind that piece work rates in a large manufacturing company are not changed very often. You can realize the reason why they should not be changed. You can change a piece work rate upwards without getting into trouble with your employees. But a piece work rate downward, however, is difficult. The current piece rate to which

I referred in this answer is the current piece rate at the time when the study is made. But I want to make clear that there are not very many changes in those piece work rates.

Exhibit A-194 is the first exhibit of all of the exhibits that I have offered which shows the deduction of the depreciation reserve account on the Bell business. I made an allocation of the depreciation reserve between the Bell and the non-Bell business in order to arrive at the average in- [fol. 6936] vestment less amount of depreciation reserve account in column F. The basis of the allocation, in a general way, for each of the years was the same. That is the principle was the same in general. The method followed of allocating this depreciation reserve is the same as allocating the gross value of the plant. We first allocate those items which can be allocated directly, such as Installation, and Distributing House Plant Investment, which is practically all against the Bell business. We then take the investment, or the reserve, in either case, which is applicable to Telephone Apparatus, Cable and Supplies, and we divide that between the Bell and non-Bell on the basis of standard shop cost of sales.

The deduction in column F includes not only the depreciation reserve resulting from the accumulation of the normal depreciation expense but also the accumulations resulting from what we have designated before as the extraordinary depreciation.

I have this information for non-Bell business (Similar to Exhibit A-194) but I do not have it in exhibit form because there are certain pencil changes that I have made.

We do not make a detailed allocation of each of the adjustments in arriving at your estimated profits for the first three months of 1932. To do that would necessarily mean that we would have to take an inventory, and of course we take an inventory but once a year and consequently we do not have that information at this time. What I did was to arrive at the basic gross profit, and then with my adjustments for Telephone Apparatus, Lead Covered Cable and supplies, and then I made my adjustments and then when I arrived at the operating profit, I divided the operating profit on Telephone Apparatus, on Lead Covered Cable, and on Supplies between the Bell and non-Bell according to the sales made; not the cost of sales. In that respect it differs from the previous years. Included in my adjustments for

the first three months there was a deduction for inventory of about $1,500,000, that is a reduction to fair value.

When I arrive in my calculations at $1,600,000 as the loss on the first three months in the Bell business, and $125,000 [fol. 6937] for the loss for the first three months on non-Bell business, I multiply the $1,600,000 by four, to arrive at the estimated loss for the full year. That multiplication would not assume that within the next nine months we would have a shrink in inventory to fair market value below that which you had on hand on March 31st, below the fair value of March 31st, or three times $1,500,000, or $4,500,000. The answer to that is this, that the outlook for the year 1932 is so much blacker than the outlook that you would get by multiplying the first three months by four, that even if you had only the same amount, or a slightly excess amount of this $1,500,000 reduction to fair market value, I still, to the best of my knowledge, and as the result of my experience in making these estimates over a great many years would say the loss that we will get will be at least $6,400,000 for the year. I do not multiply by four the losses for the first three months because the same factors of loss in the first three months would continue for nine months, but gauged by the loss of the first three months, I determine the last nine months.

I made a forecast about June, 1931, of how much our profits would be in 1931 and 1932. That estimate was unusually good. In June, 1931, I estimated that the profits on Bell business would be $10,500,000. At the end of the year they were $10,500,000. I do not recall the exact figure, but I estimated on June 10, 1931, that the sales from which this $10,500,000 would come, would be approximately $256,000,000. At the end of the year we had $219,000,000 of sales, and we still had $10,500,000 of profits. So that an estimate on June 10th of $256,000,000 of sales, and $10,500,000 of profit, at the end of the year resulted in $10,500,000 of profit on $37,000,000 less of sales.

I made an estimate on January 1, 1932, as to what our profits would be for 1932. Each year in our budget we estimate what our profits will be.

In connection with our standard costs each year we assume an estimated volume for the year. We assume an estimated volume for Bell and non-Bell business.

[fol. 6938] At the end of three months here I made the adjustments to our profits on the basis of the information

we had for the first three months. Those adjustments were based on the best information we had, all of the information we had from all sources throughout the country, distributing houses, manufacturing department, merchandise department and as the result of our experience.

The adjustments as related to standard costs would necessarily result from the fact that our actual experience was off from our estimate.

One of the estimates that we made on January 1, 1932, in arriving at our standard cost for Bell and non-Bell would be the estimated volume for each.

"Q. Well, you take an estimate of $50,000,000 for the first three months on Bell business, and an estimate of $20,000,000 on non-Bell business.

"A. That is right.

"Q. And you figure your profits are going to be on a certain basis, a certain amount. Now at the end of the three months you find that your non-Bell business, instead of being $20,000,000, is $1,000,000—or $5,000,000, we will say, that is 25 per cent; and your Bell business, instead of being $50,000,000, is $40,000,000—in other words, your Bell business came within 80 per cent of your estimate, and your non-Bell business came within 25 per cent of your estimate.

"On your basis of adjustment with the adjustments on the basis of the Bell business, the $40,000,000 and the non-Bell business of $5,000,000, would not the Bell business absorb the errors due to the greater amount of error in your judgment as to the non-Bell business?

"A. If your illustration was in accordance with the facts, yes, but the situation is exactly the contrary, Mr. Goldstein."

The Bell business is falling off to a larger extent than the non-Bell and our method means that a larger part of the loss is apportioned against the non-Bell, than against the Bell. I am saying, I make this apportionment on basis of sales.

Now I will say, I think that the soundest principle is to make it on the standard cost of sales; but that information is not available. 95 per cent of our business is with [fol. 6939] the Bell Companies, and whatever method you use, if there is any error there at all—and I do not think from a common sense viewpoint that there is any error

that need be taken into account, but if there is any error, it is utterly negligible.

"Q. But in any event it would be necessary to arrive at a conclusion, to compare the budget each year with the actual experience each year on the Bell and non-Bell business, and for each class of apparatus taken into account.

"A. It is not necessary to compare it with the budget."

The budget does not have anything to do with our earnings. Our estimate of profits is on the basis of the exact sales for the period. We based our profit for the first three months on the sales for the three months and on the costs for the three months.

Each year we estimate our sales at the beginning of the year and we estimate what profits we expect to get. These estimates are what we call a budget. But that does not have anything to do with our profits for the first three months; no relation whatsoever. It would have nothing to do with a check on the profits for the year except to find out how we differed from what we estimated at the beginning of the year. But the real facts are there as the result of inventories, and what the result was for the year.

There was no change in the prices on Bell business in 1932; no general change at all. There was no general change in non-Bell. Our standard cost of copper and lead did not change in 1932.

We calculated the return on investment on telephone instruments in 1927 at the request of counsel for the city.

There is no uniform policy with relation to the guarantee of non-Bell customers against patent infringements. If a customer asks for the guarantee, why, we give it. If it is included in the contract form which they ask us to sign, we give it without any question, but there is no uniform policy. I am not familiar with the form of contract handed me by counsel for the city. When we do give the guarantee there is no additional consideration.

[fol. 6940] Redirect examination.

By Mr. Thompson:

The amount of Bell sales included in Exhibit A-194 for the year 1932 is $151,472,000. That would be the first quarter projected for the year. Our present estimate of what those Bell sales will be for the year 1932 is $121,500,000.

[fol. 6941] CHARLES A. HEISS, recalled as a witness on behalf of the plaintiff, having been previously duly sworn, further testified as follows:

Direct examination.

By Mr. Blackman:

May 25, 1932.

The paper marked for identification Plaintiff's Exhibit A-198 was prepared under my direction and supervision. The figures in line A of this exhibit are taken from the books of the American Telephone and Telegraph Company. They are taken directly from the books of the Company at December 31st.

They show the amounts that the American Telephone and Telegraph Company collected under its license and contract arrangements from the associated companies, and the Bell Telephone Company of Canada. The figures appearing in line B were taken from Exhibit A-170, and reduced by the allocations to the Long Lines Department as shown on exhibits which I have introduced during the past few weeks. That is, my starting point is Exhibit A-170. A-170 included amounts which I had allocated to the Long Lines, in other exhibits and I have gone through these other exhibits and taken out the allocations to the Long Lines in each case. Line C is merely the remainder after substracting line B from line A. These figures that are blotted in red indicate losses.

The figures opposite D (1) were taken from Exhibits A-178 and A-177, and modified or reduced to eliminate the amount allocable to Long Lines on the same basis that similar expenses of the Personnel Department were allocated, in the exhibit introduced with respect to the expenses of the Personnel Department. The figures shown against subdivision 2 of Item D were prepared by me on the same basis as Exhibit A-163. The figures here shown against Item 2 are the figures for all of the associate com-
[fol. 6942] panies, whereas the figures on A-163 were the figures for the Chicago area but the figures here are comparable and built up on the same theory, and the same basis that I used and explained in connection with the Chicago area with Exhibit A-163. Line E is merely the remainder after deducting the sum of the two items under Item D, from Item C.

Below Item E, there are some additional items. At the top of the page there appears this statement, "Also additional items which should be considered on the assumption that American Telephone and Telegraph Company is a contracting party entitled to make a fair contract with associated companies and a fair profit therefrom." Now, the figures in lines A and E represent the revenues and the basic costs, costs and deductions which should be set off against them. Now, then, below I have set forth additional items which should be considered in connection with the amount appearing on line E. That is before assuming that line E is profit, or that there has been an excessive amount collected by the American Company from the associate companies in respect of these license contract services, there are certain additional items that must very definitely be taken into consideration in determining whether the balance there shown is a profit or balance.

With regard to that line E, that shows a loss of $28,000,000 as the sum total of the results for the nine years in question: it shows a small positive balance for four years and a loss for five years and the net is $28,193,600 in the red.

The consideration of these additional items is to reduce the black figures and to increase the red figures.

The first item (a) is the liability of American Company to associated companies under guarantee to protect and save harmless these companies from all actions and suits charging infringement of patents, as provided in Section 2 of our license contract. Now, during the period 1923 to 1931 inclusive the American Company actually transferred from its surplus to a Reserve for Contingencies, the amounts here shown against this item aggregating $30,[fol. 6943] 395,800. In other words, the American Company during the period 1923 to 1927 actually put in a contingency reserve $30,389,800. Now, before that time, four or five years before that time, I think, the American Company had set aside similarly large amounts, I think beginning with 1919 regularly each year through to 1927 it had set aside provisions in its Contingencies Reserve. Now, briefly the reason for doing it was that during the war there was a great incentive to stimulate or to develop the communication art and the use of electricity in communication. The war demanded it and the research bureaus in this country were seeking everywhere to find ways in which the elec-

trical communication could be expanded. Our own people, along with other research laboratories, many other research laboratories in the country, developed the art.

At the end of the war there were a great many ideas and there was considerable advancement; we had during the war for the first time been able to talk from Arlington to Eiffel Tower in France. There were a great many ideas that were in process of development and our own people felt then that the time had come when there was a rather serious situation in the patent field relating to the application of electricity to communication, and that there were a great many questions to be unraveled and rights of different parties to be decided; and they felt that while they had previously set up a Reserve for Contingencies, the time had then come when they must seriously face this situation; and in the judgment of our management, it was a wise policy to establish definitely a Reserve for Contingencies primarily against this infringement liability. From my own knowledge of what transpired I know that a controlling factor in the establishment of this Contingencies Reserve was this particular situation that I have just outlined, and its related possibilities of incurring infringement liability, liability for infringement of patents.

During the extreme period covered by my exhibit, there were serious patent suits brought against the Company. There is one pending now—in fact there are two suits I think pending the courts in Michigan. They are test suits, but the [fol. 6944] claimants claim damages running almost into the amount of the value of the telephone property; and this situation is continually in the picture, where you have, as we have, 11,000 patents or patent licenses used in one or the other phase of our business.

During the years covered by this period our provision to the Reserve for Contingencies was as follows: 1923, $3,000,000; 1924, $3,000,000; 1925, $6,000,000; 1926, $4,000,000; 1927, $14,395,800. For purposes of this statement I have taken the $14,395,800 and have spread it in three million dollar amounts during the remaining years of the period, except for the year 1931, where I have included $2,395,800. I know from my own knowledge of this appropriation in 1927 that it was the intention that it should cover for several years the provision which we felt ought to be made for contingencies. That was the balance remaining in the depreciation reserve after the sale of the in-

struments, that was transferred to surplus, and in the judgment of our management they felt that that balance should be definitely ear-marked against future contingencies arising in the business; that is contingencies of the character which I have just described.

Now, Item (b) is the acquisition for benefit of associated companies of rights under General Electric Company and Radio Corporation of America patents by surrender of rights in radio field worth upwards of $10,000,000. I believe that that situation is very adequately and sufficiently described in the testimony of Dr. F. B. Jewett, pages 2107 to 2122 inclusive of the transcript.

Item (c) is an allowance sufficient to yield a fair return, plus profit, on the value of all property used in rendering license contract services, including value of the Development and Research, and other General Department Organizations of the Company, less costs already included in Exhibit A-167 and Item D (2) above. That is we did not want any duplication here and so while we believe we are entitled to a fair return plus profit (that is, under this theory, under this assumption on which I am proceeding) on the value of all property; we should exclude such accounts as [fol. 6945] have already been included in our costs. I have gone through these figures carefully and eliminated all possible duplications, and whereas in this item I call attention to the fact of an allowance and that there have been items in connection with that taken into our cost figures I have set forth clearly what these items are and that they should be deducted. Of course I have not cumulated these different amounts. I have however here earmarked the places where the costs appear that should be excluded.

Item (d): Under Item (d) we merely call attention to the fact that in all computations involving the average cost of funds used in the business these average costs give effect to the inclusion with capital funds paid into the business, all of the surplus of the Company, whether appropriated or unappropriated (even Reserve for Contingencies, which I have just discussed, has been included there) on the basis of no capital charge cost to the Company. That is not really a separate item. It is merely calling attention to the conservatism with which my costs were computed, so that that would not be overlooked. And incidentally, it also explains the situation that developed a few days ago here as regards the difference between my cost computations in Ohio,

and here, and the computations made in Michigan. In Michigan I did not give credit for surplus, and that in itself accounts for substantially all of the difference. These differences that were called attention to were confined to the differences in my costs with respect to money and I say it accounts for substantially all; it is not all, but it accounts for the major part. The rest, the remainder, was a current tax adjustment which we made on our books as a matter of current accounting practice as between the General Department and the Long Lines. This method of procedure that I have here indicated reduces materially the percentage rate for cost of funds wherever that rate is used in the business, for determining costs.

(Plaintiff offered in evidence Plaintiff's Exhibit A-198. Objection reserved by defendants until close of cross-examination.)

[fol. 6946] The paper marked Plaintiff's Exhibit A-199 was prepared at my direction and under my supervision. It purports to show a statement similar to that just discussed but modified to the take into consideration a different assumption of the relationship between the American Company and the associate companies. The figures contained in the block of lines beginning with A and ending with E are the same figures as those shown on the preceding exhibit; they are identical figures, because in the interests of conservatism here I have used these figures under this assumption (although if I had wanted to make refinements I could have reduced these figures to some extent on the assumption under which I am proceeding).

Item (a), under the box, is the same item that appears on my previous exhibit. What I have said applies in the same manner and to the same extent to this item and with equal force.

Item (b) is different. Item (b) calls attention to the fact that in connection with the costs and deductions stated, there should be considered a fair return and amortization charges upon the value of approximately 11,000 patents and patent rights including patents acquired from the general Electric and Radio Corporation of America at a cost of over $10,000,000, for the benefit of the associate companies, and other patents acquired by purchase at a cost of over $6,200,000, together with patents taken out by employees, less amounts included in Exhibit A-160 for patents purchased

and enumerated at pages 2661-2667 of the minutes in this case. That is during this period there were charged to the Law Department and included in the expenses of the Law Department a number of purchases where the amounts were usually small. I explained that and gave the amount for each year in my testimony in connection with that exhibit and those amounts should be deducted here.

In regard to item (c), on the assumption under which we are proce-ding: This is an allowance equal to the difference between a fair return and the amount computed by using average cost of funds used in business—and those average [fol. 6947] costs as I have just explained, were extremely conservative—ranging from 6.25 per cent to 6.93 per cent during the period, as shown on Exhibit A-164, on the following items of property of the American Company used in the telephone business of the Bell System:

1. Working capital measured by the average amount of funds held available for the use of the business (Exhibit A-169) ranging from $70,000,000 to $300,000,000 per annum throughout the period 1923 to 1931 inclusive. That is a fair return on the working capital less the amounts which I have already included by using the average cost of the funds used in the business, conservatively computed, by adding back surplus.

Item 2, under the caption, is allowance equal to the difference between a fair return and the amount already included in the cost on the physical property of the general department of the American Company used in the business, as shown by Exhibit A-170, ranging from about a million to twelve million dollars per annum throughout the period, 1923 to 1931, inclusive. During that period the headquarters of the American Company were in 195 and 205 Broadway. During the early part of the period, it was the 195 Broadway Corporation that owned the 195 Broadway building, in which the American Company had a 70 per cent interest and the Western Union had a 30 per cent interest. Then the other corner, the 205 Broadway, was owned by the American Company outright. Then later the 205 Broadway Corporation was formed, and later still, the Western Union sold out its interest in the 195 Broadway, to the American Company. At the end of 1930 (one year of this period) there was just one corporation, the 195 Broadway Corporation, taking in all of the property formerly held by the two corporations. That company had issued stocks and bonds

against this property which amounted, I think, in excess of two and a half million dollars at the beginning of the period and now my impression is the stocks went up as high as fifteen million dollars.

[fol. 6948] The total assets of the corporation now are in the neighborhood of twenty-eight million dollars, and I think the debt and the stock is about equally divided; that is just an offhand impression. It may vary a little one way or the other.

I have included nothing in this sub-division of Item C for the stock holdings of the American Company in those building companies. I have gone on the assumption that whatever stock we have in those corporations is a permanent investment, and we will take whatever dividend is paid on that stock, which up to now has been limited to 5 per cent, I think, or 6. Respecting the 205 Broadway Company I took in to this figure the investment of the American Company in the 205 Broadway Building as long as it owned that outright. But, when it organized the corporation and owned 100 per cent of the stock of that corporation, and continued to occupy the building the same way, and for the same rent, I ceased to include any allowance for that item of property, in so far as it is covered by stock. For the 195 Corporation (which was always covered by stock) I have included nothing for that building in any year; nothing on our stock investment; no loss on our stock investment, if there were any.

Item D is the same as Item D on the previous sheet; it is merely for the purpose of completing this statement.

Item E is sub-divided into two parts and the two items are those which we believe should be given consideration in the picture. The first item is cost of temporary financing, the annual amounts included in Exhibit A-170 for the period 1923 to 1931 inclusive, no part of which was allocated to the Chicago area in Exhibit A-170. Now, the amounts included in this exhibit, which is for the American Company as a whole, are as shown for the different years. Now, our reason for including it here is merely to bring attention to the fact that it may be pertinent to give some consideration in respect of a deduction for this item. All the transactions of the Company are viewed on the basis in which I am viewing them here, and all the transactions are based on the assumption which I have here explained. But this same deduction for

[fol. 6949] temporary financing does not apply under the assumption previously discussed.

As to sub-division 2 of Item E: Similarly we have felt that in making up this summary statement we should call attention to the royalties which the American Company received during the period in question, and we offer the suggestion that if any part of these royalties should be deducted, it should be a reasonable portion only thereof. That not all of the royalties should be deducted. The total of all the royalties and license fees received by the company annually for the period 1923 to 1931, inclusive, are as stated for the different years, totaling $5,229,141.

(Plaintiff offered in evidence document marked Exhibit A-199, for identification. Received in evidence.)

In sub-division 2 of Item B I have a reference to an exhibit that is left blank. That exhibit is not yet in the record, but it is an exhibit prepared identically in the same manner as Exhibit A-163, and it shows the facts for the Bell System as a whole of the instrument values less 8 per cent depreciation, expense at 7 per cent, and a fair return of 8 per cent thereon. The factors are absolutely the same as those stated on Exhibit A-163. I explained that in connection with Exhibit A-196. There is no necessity for an exhibit on that subject.

I have developed the same class of figures for the Chicago area as I developed them for the whole Company. All of the figures shown on the sheet marked Exhibit A-200 were developed in precisely the same way as I have already described in reference to A-198, except that they relate to the Chicago area only instead of to the entire associate companies. Sheet 1 of the Chicago area exhibit is identical to A-198, except that it covers data for the Chicago area.

I prepared the sheet marked for identification Exhibit A-201 for the Chicago area and it was marked "Sheet 2" at the top. This is a companion sheet to Exhibit 199 and is developed on the same assumption. The major factor for the substantial difference in result that is shown on Exhibits [fol. 6950] A-198 and A-200 is that Exhibit A-200 includes nothing for cost of temporary financing, while A-198 does. That is, I did not carry out and allocate that to the Chicago area and if you will look at sheet 2, the last exhibit introduced, at the bottom, you will notice that we make no suggestion in respect of cost of temporary financing. That is

because it was not taken in in the first instance so far as the Chicago area was concerned. There is one other difference and that is that this sheet 2 contains a statement that the Chicago area constitutes approximately 6 per cent of the Bell System and allowances made in respect of these items should be allocated accordingly.

"Mr. Blackman: I will offer the sheet A-200 for identification and A-201 for identification, in evidence.

"Mr. Adcock: Subject to the same objection.

"Mr. Thompson: Your Honors, during the testimony of Mr. Gregory and Mr. Cleveland, the plaintiff offered in evidence Exhibits A-193 and A-194, with respect to Mr. Gregory's testimony, and Exhibits A-195, 196 and 197 with respect to Mr. Cleveland's testimony. I would like to re-offer them. The objections were reserved on those until cross-examination. Are you objecting now?

"Mr. Goldstein: Well, the Gregory exhibit, A-194, I take it, is the 1932 profits, and the rest; that is subject to the same objection we made to the other Gregory exhibits that involved profits.

"Judge Wilkerson: Very well.

(Which said documents, so offered and received in evidence, were marked as Plaintiff's Exhibits A-193, A-194, A-195, A-196, A-197, respectively.)

"Mr. Goldstein: Before proceeding with the examination of Mr. Turner, we would like to have the record show that the defendants move to strike Mr. Turner's testimony, including the exhibits offered, on the ground they are incompetent, irrevelant and immaterial, for the following, among other reasons:

"First. The rate of depreciation has been fixed by the Illinois Commerce Commission pursuant to statute, and no [fol. 6951] attempt is made by the plaintiff to show, and no showing in Mr. Turner's testimony appears, that the Illinois Commerce Commission action was arbitrary.

"Second: The plaintiff's bill does not set forth any claim that the Illinois Commerce Commission's action in fixing the rate of depreciation or the expense of depreciation was arbitrary, and therefore it cannot now attack it as arbitrary.

"Third. The plaintiff sought, on the former hearing, and on appeal to the Supreme Court, to avoid the Commission's

action in fixing the depreciation rate and expense by the claim that the Interstate Commerce Commission had acquired exclusive jurisdiction over that subject matter by act of Congress, that the Interstate Commerce Commission had not yet exercised finally its exclusive jurisdiction, but had ordered the Company, upon its final action, to follow the accounting rules, which left it to the Company to fix the rates based on its own judgment, and, that in the absence of a showing that such judgment was arbitrary, the Company's judgment should stand.

"The Supreme Court found against that position, and the plaintiff cannot now take another position, which it is now taking under the well-known principles.

"Those are our objections.

"Judge Wilkerson: Have you the decision of the Supreme Court? Have you anything to offer in support of the motion except what you have already said?

"Mr. Goldstein: No. It is a statement which corresponds to the position we took in connection with the motion which is now pending, which covers the matter of depreciation, which the Court refused to pass on heretofore. The third specification of our motion is in addition to those set up in the other motion.

"Judge Wilkerson: Have you anything to say about Mr. Goldstein's motion?

"Mr. Bracelen: I think it is necessary to say no more than this, your Honor: That the opinion of the Supreme Court is perfectly definite to this effect, that the amount of [fol. 6952] depreciation expense which is to be allowed in the computations, to determine the issue of confiscation in this case, is to be fixed by this Court.

"Judge Wilkerson: I find this language: 'The experience of the Illinois Company, together with a careful analysis of the results shown, under comparable conditions, by other companies which are part of the Bell System, and thus enjoy the advantage of the continuous and expert supervision of a central technical organization, should afford a sound basis for judgment as to the amount which in fairness both to public and private interest, should be allowed as an annual charge for depreciation.'

"And, 'accordingly, the Court should make appropriate findings with respect to the amount to be allowed in this

case as an annual charge for depreciation in connection with intrastate business.'

"Is that the portion?

"Mr. Bracelen: That is the portion.

"Mr. Goldstein: But the Court did not say in that opinion as to what effect this Court should give to the statute of the State of Illinois. We are under the statute of the Illinois Commerce Commission, in so far as the rate is concerned.

"Judge Wilkerson: You will have to argue that to the Supreme Court, I suppose. Their mandate to us is imperative.

"Your objection is overruled.

"Mr. Goldstein: Exception."

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[fol. 6953] CHARLES A. HEISS, called as a witness on behalf of the plaintiff, having been previously duly sworn, thereupon resumed the stand and further testified as follows:

Recross-Examination.

By Mr. Goldstein:

May 27, 1932.

"Q. Mr. Heiss, will you explain where in A-198 you deduct any portion of the costs in an amount equivalent to the item which you showed in D-116—that is Heiss' Exhibit 10 in the Ohio case, which we have offered here—and also in the sheet, page 2 attached to 116, which you sent to us in March of this year, which shows a deduction for 1931 from the expenses allocable to holding company operations for 1931, $2,500,000; 1923, $1,000,000; 1924, $1,200,000; 1925, $1,400,000; 1926, $1,600,000; 1927, $1,800,000; 1928, $2,000,000; 1929, $2,250,000; 1930, $2,500,000; and 1931, $2,500,000.

"Where do you account for that deduction in your latest exhibit, A-198?

"A. Well, Mr. Goldstein, I made those deductions that you have read in the Ohio case, and I also made them in the Michigan case.

"Now to understand fully what was done, I think I must say a few words in explanation of the reason for those deductions."

I also made them two months ago when a letter, dated March 17, 1932, signed by Mr. Bracelen, was sent defendants, in which was estimated the costs incurred in rendering the

[fol. 6954] license contract services for 1931, and the sheet that we sent is the second sheet attached to D-116, and shows a deduction of $2,500,000. Now, on the 1931 exhibit I might say that that was sent to defendants to be comparable with the exhibits that they had previously received that were introduced in the Ohio case.

Now, the situation was this: the Supreme Court's opinion was handed down, I believe, in about December, 1930. The Ohio case was pending, and we were asked to go at this matter of license contract costs from an entirely new angle, an approach different from anything that we had previously been asked to consider, or had in consideration, and I was given the task of working out the costs. I was under very heavy pressure, and, in order to get the task done for April and May in the Ohio case, it was necessary for me to go to the different department heads and discuss with them their costs generally, to have them give me certain facts which they had which would help me to analyze those costs, so that, after I had all of these facts together, I could set up an exhibit which was a conservative statement of our costs.

Now, I appreciated in setting up this exhibit in the Ohio case that there were deductions that should be made. The whole matter of appraising the deductions was a strange one, was an unfamiliar one to our department heads, and the task of making the proper deductions, or of making a deduction from our departmental costs, was put up squarely to me. Now, after I had set down the costs of the different departments and had taken out certain specific items of cost, I then said, "To make the Ohio statement conservative, I am going to deduct at the foot $1,000,000 for 1923", and I stepped the amounts up to $2,500,000 in 1930 and later I used the same figure for 1931. I did that with the view of making whatever statement of costs I presented a conservative one, and I said in the Ohio case, in the Michigan case, and in any other case that I testified in, that I had the basis of this deduction and why I had made it, and I further stated that I could not, with my knowledge of the business, find enough things that, in my opinion, should be deducted to make up the amount; that the amounts that actually [fol. 6955] should be deducted were very much less than I had taken out, but I took out the large amounts in the interest of conservative statements.

Now, in preparing for this present case, we had a little more time to consider the matter, and we went back and

had each department study the problem very much more carefully than before, and we had each of the major departments make their own deductions. For example, Dr. Jewett testified here as to what deductions should be made from his department, to take out the non-license item; Mr. Gherardi testified as to his department, and said nothing should be taken out; Mr. Page testified, and took out an amount for his department; and Mr. Bracelen took out an amount for his department, according to my testimony. The figures which I took out for the Legal Department were figures which Mr. Bracelen definitely gave me. Now, when I came to the other departments, I took out certain direct expenses, and in addition I took out 5 per cent of the costs, in order that I might from any viewpoint, any reasonable viewpoint, make the proper eliminations.

Now those deductions—the sum of the deductions by Dr. Jewett, by Mr. Page, by Mr. Carter, for the Personnel Department, and for the Legal Department, and those which I made for the President's office and for my own and for the Treasurer, all total up, taken together, to the deductions shown in Exhibit A-170, and they are less than the amounts that I deducted in Ohio and which are contained in the figures which you have for Ohio.

"Q. In March,—in September, 1931, Mr. Heiss, you sent the defendants in this case a statement showing the revenues and the expenses, and the assets of the entire company, and the distribution between the license contract, Long Lines, and the holding company, is that correct?

"A. Based on the exhibits which I had made in Ohio——

"Q. Yes.

"A. (Continuing) —and still based on the exhibits I had made in Ohio.

"Q. And those exhibits in Ohio were intended to be the substance of the exhibits in this case, were they not——

[fol. 6956] "A. That is a matter——

"Q. —at this hearing.

"A. That is a matter that the lawyers will have to answer.

Q. You do not know what purpose the exhibits and the testimony in the Ohio case were furnished to the defendants for, do you?"

What I know is this; that I made up the exhibits in the Ohio case, and I stated to Mr. Goldstein the basis on which

they were prepared. I was told that they were being sent to defendants and my work on the preparation of the definite exhibits going into this case was not completed until I came to Chicago, and for this case I prepared the exhibits which I have introduced in this case; the Ohio exhibits, so far as I am concerned, were prepared on the Ohio case; and the analysis that I sent defendants of the balance sheets and of the earnings, everything broken down according to the Interstate Commerce Commission, was based entirely on defendants' request to have the exhibit in the Ohio case broken down.

I testified in Ohio that in making my figures and estimates as a basis for Ohio Exhibit 10, Heiss' Exhibit 10 which is D-116, I proceeded not only from my own knowledge but after consultation with the heads of the various departments, such as Department of Development and Research, Department of Operation and Engineering etc., and that is just what I said here. I went to the departments and got all of the information I could get from them, and after I had all of the information I could get from the departments, I had to take the data and on my own responsibility finally bring the amounts together in an exhibit which I presented in the Ohio case, and in that case I deducted the empirical amounts, because I wanted the exhibit to be conservative.

The item that I defined in Ohio was: "Deduct from Indirect Costs Estimated Amount of Corporate Expenses Attributable to Ownership of System Securities and Related Expenses."

[fol. 6957] That is the item that is contained in the exhibit which I sent to defendants on March 17, 1932, and those same elements are in the deductions which I have made in this case. In March, 1932, when I prepared and sent that exhibit to defendants, I felt that the $2,500,000 was excessive. I sent it to have my exhibit comparable with my Ohio exhibits, and I expected at that time that the attorneys preparing the case for the City of Chicago might wish to have that amount analyzed, and instead of showing an empirical amount as I show to make the exhibit conservative, the attorneys would certainly want to have the deductions exact, because there would be no occasion for our giving away a million or so if there was nothing for which the deduction should be made.

In the Ohio case, I was asked the following questions by Mr. Thompson and made the following answers:

"Question: Do you mean, Mr. Heiss, that from these indirect costs ascertainted by you for each of the years in question, you have deducted an estimated amount for corporate expenses attributable to ownership of system securities and related expenses?

"Answer. I have, and I will explain my basis for that.

"Question. I wish you would do that, please.

"Answer. Now on the other hand, some part of the costs of these various financial undertakings may reasonably be considered as incurred in a strictly holding company capacity. On this assumption, the indirect costs, as set forth in the statement, including as they do costs of a joint character, must be apportioned between those which should be assigned as part of the cost of performing license contract service, and those on the other hand which should be excluded because they are a cost of conducting financial activities in a holding company capacity. Such apportionment because of the interrelated character of the activities must of necessity be based on an estimate, and on reasoned judgment, and in the figures which follow in this statement an allocation has been made on that basis.

"Question: Does this amount of $1,000,000 which you [fol. 6958] have deducted from Indirect Expenses represent in your judgment and opinion a fair and just amount of the cost of the activities of that company for the year 1923, not attributable to rendering the license contract service, after you have excluded the Long Lines expenses?

"Answer. Yes; this amount, based on my knowledge of the business of the American Company, this amount of $1,000,000 for the year 1923, is fully adequate.

"'Fully adequate'—I do not say it represented the amount; I said, it was 'fully adequate'.

"—to cover these non-license contract activities, and even somewhat larger than the facts warrant."

Then I go on to say:

"We have of course in addition excluded from the statement the cost of expenses incident to other non-telephone activities."

And there is another statement here that should be taken into consideration.

"Now the American Company after excluding its Long Lines' activities, obviously exists primarily for the per-

formance of what I have described as major activities, namely, the rendition of services to the companies having license contracts, and to this activity should be assigned its proportionate share of the cost of maintaining the general corporate structure necessary to such existence. There should likewise be set forth under license contract costs as definitely incurred in that field, a reasonable part or portion of the expenditures incurred by the company in its various financial activities, which materially enhance the scope and quality of the service which we render under the license contract. The financial activities of the company being distinctly related—are in fact indispensable to the complete performance of the license contract services, and from every standpoint they materially supplement and improve the character and the scope of the service which we render under these contracts. Any statement of costs in-[fol. 6959] curred in rendering these license contract services must therefore in my opinion include a substantial part of the costs of the several financial activities just enumerated, as well as its pro rata part of the cost of maintaining a general corporate organization of the company."

Now it is on that basis that my Ohio statement was built.

In the 1931 dividends received by the American Company on the permanent investments in securities were $139,443,081, and that would include the Western Electric Company.

"Q. Yes, and your disbursements applicable to that $139,000,000 were $117,000,000 in the form of dividends and interest to the stockholders, and the holders of credit obligations of the American Telephone and Telegraph Company, is that correct?

"A. That is the amount that I apportioned—of dividends and interest, that I apportioned against dividends, but that is not all that I have excluded."

I simply say on A-198 that we received so much for license revenue and our costs are so much, and the difference for 1930 is a little in excess of $11,000,000; that is, our revenues were $11,000,000 odd less than our expenses. With an earning of $139,000,000 from our holding company operations, which was used to the extent of $117,000,000 to pay dividends, and with a total income, as shown on A-198, from our license contract operations of $15,000,000, which

would show a loss of $11,000,000, I am still of the opinion that the license contract operations have been the major activity of the American Telephone and Telegraph Company in 1930 and 1931, and the holding company operation was incidental, because the holding of the securities of our license companies is an incidental activity in connection with the rendit-on of the license contract service. The purpose of holding those securities is to provide a better basis for raising the many millions of dollars we need in the business, and I say it is a help, it helps to that end very materially. I said, a few days ago, that while the American [fol. 6960] company might be termed a holding company, it is not a holding company in the ordinary sense that one speaks of a holding company. Go back to the beginning of the business; the American Company (I am now speaking of the American Bell, the predecessor company) licensed the companies under its patents and, at the same time, it found that it was necessary to finance the companies.

In line 1-H of Exhibit A-170, you will find a deduction for holding company operations. I want to make an explanation about the $750,000 for the year 1931 on this line 1-H. This sum is net after I excluded therefrom a large amount of cost incident to holding funds available. If you will turn back to the exhibit for the year before, it gives a better picture. For the year 1930, the deduction for non-license expense is $1,152,350. As Comptroller of the American Company, I cannot, under any stretch of my imagination, make myself believe that we need to spend any such sum of money to do our corporate activities today; that is, our strictly corporate work not related to license companies and our work in connection with the Electrical Research Products Company, or any non-Bell activity; I cannot understand how we could spend $1,150,000. Even the $1,152,000, in my judgment, is too high. When I estimated $2,500,000 before, it was too high, because I have excluded expenses in my own department that I do not have any justification for excluding, because the amounts that I excluded for the Comptroller's Department in relation to the work that I do are clearly out of proportion, but I did it in the interests of conservatism.

The $361,000 for the year 1923 in line E of Exhibit A-200 is the balance remaining from the license contract service for the Chicago area after deducting the average cost to the American Company of holding money available for the

Chicago area and also deducting a return on the American Company's investment in the telephone instruments in the Chicago area. I assume, in setting them up that we are entitled to just as fair a return as the Chicago property is entitled to.

[fol. 6961] Line E of Exhibit A-198 corresponds to line E of A-200, except in respect of one thing, which is explained, and that is that line E on A-198 is after taking consideration of the costs of temporary financing. Now, when we come to A-200, we state definitely that we have not included any of the costs of temporary financing in the Chicago area. It is a cost to the American Company, but I just did not feel it conservative to allocate it to Chicago.

Line E in Exhibit A-198 in each case represents that amount of money which is left over out of the license payments after the American Telephone and Telegraph Company has taken care of all the expenses and has allowed itself an amount equal to the annual charges on carrying the investment, taken on the assumption that the American Telephone and Telegraph Company is a contracting party and is entitled to make a fair contract with the associate companies, and a fair profit therefrom. The American Company would get the revenues shown on line A. There is no profit in this. Line B shows the actual expenses incurred according to Exhibit A-170. Now Exhibit A-170 has in it, so far as the American Company is concerned, all of our costs of holding funds available.

"Q. Mr. Heiss, does it also include all the costs of holding the investment in telephone instruments—A-170?"

Exhibit A-170 does not give consideration to item D-1 and item D-2 on Exhibit A-198, except that A-170 does include the book investment less depreciation reserve multiplied by the average rate to find the average cost of funds used in the business. In other words, line B shows the very minimum figure for the cost of instruments that we could include. Now in D-2 I approach it from the point of view of what is a fair allowance, and I say right in that caption, "Less amounts already included in item B above (the costs shown on Exhibit A-17)". In other words, in D-2 I am only claiming the excess between the very minimum charges that I could make on instruments, and what I could claim for instruments on basis of a fair return plus expenses.

[fol. 6962] EDWARD E. BROWN, called as a witness on behalf of the plaintiff, having been first duly sworn, testified as follows:

Direct examination.

By Mr. Blackman:

May 27, 1932.

My full name is Edward E. Brown. I am Vice President of the First National Bank of Chicago and the First Union Trust and Savings Bank. I have been Vice President of the First National Bank of Chicago for twelve years, and Vice President of the First Union Trust and Savings Bank for five or six years. Prior to that time I was General Counsel for both banks for approximately ten years. I was a salaried employee of the First National Bank and First Union Trust and Savings Bank since 1910.

The First National Bank of Chicago has deposits today of around $460,000,000, and the First Union Trust and Savings Bank has deposits of around $200,000,000. On the last published statement of the First National Bank and the First Union Savings Bank, it was somewhat smaller than the Continental-Illinois Bank and Trust Company. I think it is approximately as large as the Continental today. I think there is only one other bank west of New York City that is as large as, or larger than the First National Bank of Chicago and the First Union Trust and Savings Bank combined.

In my capacity as an officer of that bank I have had to do with securities of various kinds. I am what is called a General Vice President of both banks, ranking officially immediately under the President of both banks. For a number of years I have had direct supervision of the division of the First National Bank which makes loans to stockbrokers, bond dealers, and security houses, and, in the case of the First Union Trust Company, for a number of years part of our organization, the officers of the Bond Department are supposed to consult me before making any commitments on the purchase or underwriting of securities. I am also Vice [fol. 6963] President and Director of the First Chicago Corporation, which, from time to time, has underwritten stock issues of various corporations, and I am on the Executive Committee of the First Chicago Corporation.

I have been familiar with the principal underwritings in

the city of Chicago for the last ten years and the prices at which the securities were sold to the public and the prices which the corporations obtained. In a general way I am familiar with the market prices of the principal securities of the country. I am familiar with the securities of the American Telephone and Telegraph Company and its subsidiaries. I am familiar with the securities of the principal utilities in Chicago, and all of the principal local companies in Chicago, and pretty generally with the principal utilities throughout the country.

"Mr. Blackman: Now I may say for the record we have agreed to ask Mr. Brown only one question in the interests of expedition.

"Q. Mr. Brown, have you read the testimony of Mr. Hoyt given before this court, direct and cross?

"A. I have."

I agree substantially with what he (Mr. Hoyt) said. I believe that he stated that in 1928 and 1929, as I remember his testimony, it would have been possible for a corporation to have obtained money at 7.5 or possibly 7 per cent, as against 8 per cent the years prior thereto. I think that that would be true as to those years. However, I believe that a large corporation such as the Illinois Bell, which requires additional sums of $20,000,000 to $30,000,000 per year, or has in the past few years, for construction, cannot afford to press the market too hard; it has got to sell its securities at a price to the public which will enable underwriters, dealers, and the ultimate investors under normal conditions to have a reasonable expectation of a profit, if they are to be in a position of going back year after year. I think that if the market had been pressed in 1928 or 1929, and capital obtained at as low a rate as 7 per cent, it would have meant having probably for the corporation to pay more in the latter part of 1930, 1931 and 1932.

[fol. 6964] Cross-examination.

By Mr. Goldstein:

Included among the members of the Board of Directors of the First National Bank of Chicago and the First Union Trust and Savings Bank, are William Rufus Abbott, Chairman of the Board, Illinois Bell Telephone Company, and Bernard E. Sunny, Director of the Illinois Bell Telephone Company.

The Illinois Bell Telephone Company is a depositor of the First National Bank, and has been such for a great many years. I think the original Chicago Telephone Company was largely financed and owned in the early days by people connected as directors of the First National Bank of Chicago.

Mr. Sunny has been a director for a good many years.

Mr. Abbott was a director of the Union Trust Company, and became a director of the First National Bank of Chicago when the Union Trust Company was merged with the First National Bank of Chicago in 1929.

CHARLES A. HEISS thereupon resumed the stand and further testified as follows:

Recross examination (continued).

By Mr. Goldstein:

May 27, 1932.

In the following discussion of Exhibit A-170 I will concentrate on the year 1923 and the first column. The first number which it shows is Cost of Rendering Contract Service, and I have in there "Departmental". None of these costs include what it did cost the American Telephone and Telegraph Company in dividends and interest to get the capital in the performance of the service. Item (b) Instrument Maintenance, does not include any item for that. In item (c), Taxes, there is not included an amount of dollars equal to what the American Telephone and Telegraph Company paid in interest, amortization of discount, and dividends on the funds which were used in the performance.

[fol. 6965] Item (d), amounting to $1,327,000 (Cost (Net) of Carrying Investment in Physical Property) contains an amount which is arrived at by taking the investment of the American Company used in license contract service, deducting depreciation reserve therefrom, and multiplying that amount by 6.87, the average cost of funds during the year.

"Q. And the reason why you include that is that you consider that part of the costs of furnishing the license contract service, is the expense which the American Telephone and Telegraph Company had in paying interest and dividends to its stockholders attributable to investments in that—is that it?

"A. No sir, I include it because the laborer is worthy of his hire and the American Company has put so much money at the disposal of the license company, and it is entitled in a statement of costs, such as I have built up here, to get back the cost of that, that is as a minimum.

"Q. And that cost is what it paid out in dividends and interest attributable to that investment?

"A. That is what the money cost the American Company. I do not know whether we have dividend money in here, or surplus money, or interest, or bond money."

The 6.87 which I used as a measure of that cost is arrived at by taking the total amount of dividends paid in the year, the total amount of interest paid in the year, the amortization on the discount during that year, and dividing it by the dollar investment as shown in A-164. The dollar of investment includes capital stock, surplus, premiums and bond money.

It is not a fact that that item which I have in here as a cost, is part of the dollars equal to what the investors in securities of the American Telephone and Telegraph Company have taken from the American Telephone and Telegraph Company, attributable to that investment. It has nothing to do with that. It is simply what the American Company paid out in interest and dividends on the money it had from investors, but that enters into one element, one side of the picture, and the other is the total amount of [fol. 6966] money in the business regardless of where it came from; and applying one against the other, you get your ratio of 6.87.

Exhibit A-164 shows the 6.87. That is the same figure that I use in A-170. 6.87 is the average rate which the American Telephone and Telegraph Company paid, which includes the result of paying 8.79 in dividends on capital stock. The amounts in A-170 include the amount which I arrive at by applying the average cost of funds during the year, against the investment, and that average cost of funds is fully explained on A-164, and you there see that the average cost is the composite of capital stock, surplus, premiums and bond money.

"Q. So that you start off—so that you include in A-170, do you not, an item of cost which includes a return to the American Telephone and Telegraph Company equal to what it spent in dividends, interest and amortization, to get the

capital which you say it used in the license contract services?

"A. No. You have got to include the surplus factor in there."

I have included the surplus factor in arriving at the 6.87. It is substantially correct to say that for every dollar invested in the license contract service in the year 1923, I have included as part of the cost before I arrive at my balance, an item of 6.87 (or for every one hundred dollars, $6.87) which I say is a cost, because the American Telephone and Telegraph Company had to spend $6.87 to get that $100.

Exhibit A-198, line C, shows $3,713,096 as the balance remaining for the year 1923 from license contract revenues after there has been deducted the expenses including an amount which the American Company has spent to acquire the investment as shown in A-170 at the rate of 6.87 which is the bare cost of the money invested in property used in rendering the license contract service, that is (for 1923) instruments, buildings and the furniture and fixtures (less depreciation reserve).

That bare cost is the bare cost indicated in A-164, which represents 5.73 on loans from the associated companies as [fol. 6967] part of the capital required, 5.69 on funded debt, 7.44 that was paid on capital stock installments, and 7.17 that was paid on every dollar of capital stock, capital stock premiums and surplus. It is the composite of all of those.

I arrive at item D-2, (A-198) "Fair Allowance for Telephone Instruments less costs already included in Item B above" in just the same manner that I used in developing Exhibit A-163. As I said before, these figures in A-198 show the total for the entire Bell System, whereas on Exhibit A-200 I show only the figures for the Chicago area. Now, the method was identical. I used the same method as for A-163.

The first item in Exhibit A-163 is "Average Current Cost". That is the average current cost of telephone instruments for the years 1923, 1924, 1925, 1926 and 1927, for the Chicago area. I have here a document which shows the figures I used in arriving at D-2.

(Which document was thereupon marked Defendants' Exhibit D-122 for identification.)

D-122 is an instrument credit for Bell System on the basis

that the American Telephone and Telegraph Company is the lessor and leases instruments to a contracting party as lessee, under the assumption stated, at the top of A-198.

"Q. Yes. Now, your figures in column B, "Costs Incurred in Rendering License Contract Services", were those costs figured on the basis of the American Telephone and Telegraph Company being on one side, and the Illinois Bell Company on the other side, or were they considered on the basis that the Illinois Bell was a department of the American Telephone and Telegraph Company, and the American Telephone and Telegraph Company owned the property?

"A. The figures in B represent just the—in so far as the instruments are concerned, represent just the bare costs of the American Company.

"Q. No, I am forgetting the instruments. I mean the other costs as shown in item B of A-198: do they represent costs on the basis that the American Telephone and Telegraph Company owns the Illinois Bell Properties, and therefore these directors' fees of the American Telephone [fol. 6968] and Telegraph Company are properly chargeable or do they represent costs on the basis of contracting parties—which?

"A. Mr. Goldstein, costs are costs.

"Q. Well, but on the theory that you use in determining those costs, in justifying those costs——

"A. I have used that which a practical business man would use. We had certain costs on our books, and I collected those together in showing my license contract costs.

"Q. Did you hear Mr. Blackman state here that the theory upon which you justified the directors' fees of the American Telephone and Telegraph Company being charged to the Illinois Bell, was on this theory, that the Illinois Bell was considered a department of the American Telephone and Telegraph Company?

"A. I do not know.

"Mr. Blackman: I doubt if he heard that, because I do not think I said it.

"The Witness: Mr. Blackman will have to answer that question for himself.

"Mr. Goldstein:

"Q. Did you in the allocation of costs included in column B, consider the Illinois Bell a contracting party as against the American Telephone and Telegraph Company——

"A. As I said——

"Q. (Continuing.) —other than telephone instruments?"

As I said, I took the costs which we had on our books for rendering that service and I collected them together in the statement of costs in A-170. Now, it does not make any difference for either, in either Exhibit A-198 or A-199; so far as the basic fundamental costs are concerned, they are the same in my judgment under both assumptions, excepting that when I come to A-199, I think I have the right to compute them even more conservatively; I have a right to compute them more closely than I do on A-198, for the further reason that A-198 assumes that I might be able to get a little profit out of my contract, whereas A-199 assumes that I was not entitled to a profit. Therefore I would figure my costs carefully.

[fol. 6969] Now, taking D-122, which is the detail for item D-2, "Fair Allowance for Telephone Instruments": I deducted from that certain costs as shown in A-170 in arriving at it. For item E, I took the current cost of telephone instruments, and used that as a base instead of the actual cost of the instruments. The current cost was the current cost as shown on our books. In 1923, I used $36,712,948 as the average current cost which was arrived at by taking the number of instruments that we had in 1923 and multiplying it by the then current cost.

In A-166 I show that our total investment in telephone instruments in 1923 was $31,329,013. Instead of using the $31,329,013, I used as a base $36,712,948. The reason for that difference is apparent on the face of the exhibit. The figures shown on A-166 are those which are the accumulated costs in our accounts for all instruments up to that time, and the figures shown on D-122 are the number of instruments multiplied by the current cost per unit in 1923; and I assume that the difference is the difference due to the change in the price per unit.

All we took as a basis for the average current cost of telephone instruments for the years 1923 to 1927, inclusive, was the average number of instruments charged against each company during that year multiplied by the prices of that

year which the Western Electric Company charged us for the instruments. Those prices correspond to the price list of the Western Electric Company. I should hope they are identical with those. My people when they receive a bill from the Western Electric Company always check it to see that the prices are right.

I then deducted depreciation for the purpose of A-198 which for the year 1923 was $2,937,036. That is 8 per cent off of the average current cost. I deducted that when there was a depreciation reserve on our books against the instruments of $15,010,382 as shown in A-166. I used $2,900,000 instead of the $15,000,000 for the deduction because the $2,900,000 is based on the same factor that I used in compil- [fol. 6970] ing A-163, and that 8 per cent figure used there was taken from Plaintiff's Exhibit A-32, pages 8 and 9, showing that the actual depreciation in those instruments was 8 per cent. I deducted in this statement the actual depreciation and in the other I deducted the depreciation reserve.

"Mr. Goldstein: Mr. Heiss, did you make this statement in the Ohio case in response to a question as follows:

'Q. Well, do you know, or can you tell us whether or not there was a profit derived out of that sale by the American Company to the Associated Bell Companies of those instruments that they had bought from the Western Electric Company?

'A. There are two answers to that question. The sale of the instruments to the associate companies and the concurrent cut in the rate of license revenue was decidedly advantageous to the companies. Now, on the other hand——

'Q. To which company?

'A. To the local company.

'Q. To the local company?

'A. Yes.'

"Now, here is the thing; this is the statement that I am directing your attention to.

"The Witness: There is no implication there, I said there was a profit.

"Mr. Goldstein: No, no, I mean, this is the statement——

"The Witness: All right.

"Mr. Goldstein: Here is the statement:

'A. Now, on the other hand, the American Company carried its investment in instruments on its books, going back many years. I think in 1912 we came under the control of the Interstate Commerce Commission's accounting system; we had a reserve of nearly 50 per cent on those instruments; and through the years we kept the reserve at about that figure because the instruments involved very delicate patents, and the art of telephony was developing, and it [fol. 6971] wasn't clear in those earlier years but what somebody would come along with a patent and make obsolete the instrument, so a high depreciation reserve was just a common sense procedure. Now, as the years went on and the instrument became more definitely an article of use, why, probably the same necessity for a large depreciation reserve was not in the picture. But when we sold the instruments, we had a good reserve on the books, and under the accounting practices of the Interstate Commerce Commission in closing our accounts on our books, closing out our depreciation reserve, we transferred to surplus I think approximately $14,000,000, not on profit from the associated companies at all, but as excess reserve that we had accumulated over many years in protection of our investment.'

"Did you make that answer?

"A. I made it——

"Q. Yes.

"A. —and I stand by it."

We had at the time we sold the instruments, and cleared our books, $14,000,000. That was transferred to our surplus, and from our surplus to our contingency reserve; and I think in this case, and in every case that I have testified in, the facts as to that are clear.

In connection with A-198, when I used the $2,900,000 deduction instead of the $15,000,000 deduction for depreciation, I did not have in mind also the fact that there was danger regarding patent infringement, or obsolescence due to patent development. I took 8 per cent off, which is the accrued depreciation which our engineers estimated was to be found in the instruments, and it is just a simple matter of subtracting the 8 per cent from the average cost, to get the cost less depreciation; that is all that is.

In the last item of D-122 for 1923 ($6,674,720), I include a return of 8 per cent on the current cost less 8 per cent depreciation.

"Q. And that is your return. Now, then, as against that, you then take that figure to arrive at A-198, and you de-
[fol. 6972] duct from that certain items shown in A-170. Now, which items do you deduct as shown in A-170?

"A. Well, I deduct the amount on A-166, and there is another——

"Q. You say you deduct A-166?

"A. Yes, sir."

I took A-166, and then I deduct also my instrument maintenance and depreciation. I am positive that I deducted the return on investment. I have checked and rechecked that.

In Exhibit A-200 for the year 1923, the fair excess allowance for the Chicago area is shown to be $145,625. That $145,625 is simply the difference between the net cost computed as I have explained, by applying the average cost of funds to the investment less depreciation reserve, on the instruments, as contrasted here to a computation on the basis of fair allowance with an accrued depreciation at 8 per cent, and 8 per cent return. Now obviously before I could claim anything under item D-2, I had to eliminate that which I had already claimed in item B, and this amount in D-2 is just the excess over and above the cost already included in item B.

I say that we are entitled according to A-200 to an additional $145,625.

"Q. Now my question is this: the $145,000 additional is over and above the $73,948 which you have already included in A-166 as a cost to the American Telephone and Telegraph Company in acquiring that investment."

It is over and above anything, whether it is cost on money, or instruments, instrument maintenance or depreciation. It is over and above anything that I have claimed in A-170. It is an additional amount that I feel we are entitled to, to put us on a parity with the Illinois Bell Company, if it owned those instruments; that is we are entitled to the same consideration in respect to those instruments as any other owner of them, because we devote them to public service.

"Q. Then, Mr. Heiss, am I correct in saying that the amount of money out of license payments for the year 1923, [fol. 6973] for the Chicago area, over and above the actual expenses, that is, maintenance, depreciation and taxes, in-

cluded in your Exhibit A-200, is the $145,625 plus the $73,948 shown in A-166?

"A. Well, no, I could not follow you on that."

The costs for the year 1923 which are included in A-170, are $73,948, for carrying investment (that is that 6.87); and $212,366 for depreciation and maintenance.

Now, those are all of the costs that are in A-170.

In A-198, the line D-2 for the year 1923, $2,332,636 is the amount over and above the costs which costs include the carrying charges on the actual investment in instruments, less depreciation reserve. D-2 in A-200 for the Chicago area would be on the same basis.

I have never computed how much the American Telephone and Telegraph Company would earn on its actual investment in telephone instruments for the year 1923 from an allowance which would include $146,625 over and above the costs as just stated. The $73,948 in A-166 represents a carrying charge of 6.87 for 1928; that is on the total investment less depreciation reserve. I do not want to testify as to whether the $145,625 is 13½ per cent on that investment because that is just a mathematical computation.

The total return on actual investment on my calculations in A-200 would not result in a 20 per cent return on actual investment on telephone instruments. I never made a calculation on how much the return would be on actual investment as the result of A-200.

"Q. Your statement that it would not, is based upon your knowledge that you don't know anything about it?

"A. Just my broad general knowledge of figures over many years. It just seems unreasonable that it could be 20.

"Q. And if it were found that the actual return on the telephone instruments leased to the Chicago area as a result of your computations in A-200 for the year 1923 resulted in 20.40 per cent on actual investment to the American Telephone and Telegraph Company, would — say that was unreasonable return?

"A. I don't care to answer that question.

[fol. 6974] "Q. You don't care to answer it?

"A. No."

Exhibit A-200 shows that the balance over and above the costs as stated above, in line E, is $361,183 for the year 1923. It shows for the Chicago area for the period 1923

to 1931 that the net balance over and above the costs for the nine years from 1923 to 1931 inclusive is $658,225 black, or excess over and above its costs. Exhibit A-199 shows that for the entire system, including the Chicago area, there is a loss of $28,193,600 for the same period but the two figures are not comparable. In order to arrive at the figure for the balance of the system, exclusive of the Chicago area, I could not add the $658,225 to the $28,193,600. The red figure of $28,193,600 includes the Chicago area, and the red figure $28,000,000 odd is also derived by including the cost of temporary financing in that figure, but no part of that is in the Chicago area.

We would have a bigger loss if we didn't have the black in the Chicago area. I wouldn't want to say that our total loss for the balance of the system would be $28,193,600, plus $658,225 before I checked it. I don't believe it would work out quite as the addition of those two. I would want to check up first what the effect of the cost of temporary financing is. The difference between those two figures is, that included in the costs for the entire system, I have charged a loss for the temporary financing, and the Chicago area is not charged with any part of it. In the year 1926, in A-200, I show for the Chicago area a balance of $221,000. I show in the red for the entire system $686,000. You would have the same adjustment then of increasing that by the amount in black for the Chicago area, taking into that computation the effect of the cost of temporary financing.

I think it was in 1928, we cut the license contract payments from 2 to 1½. We had a four and a half license payment to 1926, and cut it in 1926 from 4½ to 4. In 1927 we sold the telephone instruments and cut 2 per cent off. At the end of 1928, we cut it, effective as of 1929, to 1½.

"Q. Why did you make the cut from 2 to 1½ effective [fol. 6975] in 1929 when you were in the red for the system $2,700,428 and you were in the red in 1929 $6,983,259?

"A. At the time, as a matter of fact, Mr. Goldstein, that we made the cut, we had not made any computation such as I have here."

That is, we had not made any computation of what it cost us to render services, in the same meticulous way that we have here, although we had made computations back there that showed generally how we were running. But my

answer to that question, why did we cut it in the face of the loss, is that it was the judgment of the management that we should reduce it from 2 to 1½, that's all I can say. It was the action of the Board of Directors of our company, they considered it was good business to do it.

"Q. As a matter of fact, wasn't the reason that, beginning with 1926, all of the licensee companies were on an 8 per cent dividend basis, and you are investing your money and getting 8 per cent, and your costs of funds were getting less, so that you had financing profits?

"A. No, I have never heard that in all my years around the company, I have never heard that advanced."

We have always looked upon these permanent investments of ours as in a distinct and separate category. If a man invests money in stock, he takes all the risks of stock, and is entitled to the return on it. Now, this other matter of cutting the license contract was just a matter of what was considered good judgment by those who are managing the business.

In A-199 I show as an additional item: liability of the American Company under guarantee to protect and save the associated companies harmless in connection with patent matters. This reserve for contingencies was determined upon by myself and the President and was set up by the Executive Committee. There was a resolution of the Executive Committee making the appropriation.

"Q. And the place where we would find it would be in the minutes of the Executive Committee, that you have refused to show us, is that correct?

A. Yes.

[fol. 6976] "Q. And you having refused to show us, you now state the controlling purpose was to protect against patents?

"A. I don't believe, Mr. Goldstein, you would find that in the resolution at all, but the reason I say what I do here is that as Comptroller, such a matter as this, the matter of setting up reserves, is one of the things that comes very close to my functions, and in all my discussions with the President and the officers of the Company, I am giving you here the considerations that led us to recommend the setting up of this reserve."

My authority for setting up the reserve was finally the formal authority got from the Executive Committee. There may have been a whole lot of discussion prior to the action by the committee. It crystalized itself, in that resolution, because in large reserves of that type, I always like to have the formal approval of the committee of the board back of my action. There are ways the city can check anything I have said without looking at those minutes. Defendants have here the annual reports of the company to the Illinois Commerce Commission and they show for each year the amounts set aside.

"Q. But your authority for doing it is the Executive Committee authorization, which we have been refused, and about which we have been told it was a fishing expedition, to look at it?

"A. It is mentioned in the vote of the committee."

We set up as part of that same reserve for contingencies three million dollars, from 1927 to 1931. The Executive Committee did not authorize that but I state right on that sheet that the foureen million was set aside in 1927 and I know, for the same reason that I just stated, that at the time we decided to set that to the reserve for contingencies it was considered that in view of the fact that we had put aside three million, and four million and so on in the years prior, that this fourteen million would carry us along for several years on about the same basis.

There was an Executive Committee resolution in 1927 transferring $14,395,000 to reserve for contingencies. It is [fol. 6977] one of the resolutions in the minutes of the Executive Committee which the city was refused.

"Judge Wilkerson: What is it you have been refused?

"Mr. Goldstein: We have been refused access to the minutes, and when we filed our motion, we were resisted on the ground that we were going on a fishing expedition, when we wanted to inspect the minute books of the Executive Committee of the A. T. and T., we were refused access to those, and it has developed through this witness that two things come out of that Executive Committee. One, this purported reserve for contingencies that they are now claiming, and second, the authorization to make the returns.

"Judge Wilkerson: Well, do you want those minutes of the Executive Committee? That would not give you the

right to look at them all. If you call for that, you can have it, or his testimony regarding it goes out; or you may have the resolution put in. But we have had no such motion.

"Mr. Blackman: We will produce them at once.

"Judge Wilkerson: All right.

"Mr. Blackman: What we do object to, and what the Court sustained us in was a blanket demand to examine all minutes.

"Judge Wilkerson: Of course, you may have access—not access, but you are entitled to the production of the original document about which he testifies, or his testimony about it will go out of the record.

"Mr. Goldstein: That is our position."

This protection provided for by the Reserve for Contingencies is against patent infringements and includes apparatus as well as telephone instruments and anything to which our patents extend and which our guarantee covers. Section 2 of the lease contract provides that the American Company shall indemnify the licensees against infringements on everything that the American Telephone and Telegraph Company recommends.

"Judge Wilkerson: I think there have been during the course of the trial a good many allusions to inspection and examination and access of documents, or to the production [fol. 6978] of documents. I think that where such an indication has been made, unless the attention of the Court is brought to it before the record is closed, the Court will assume that direction has been followed. It is brought to my attention just now by a ruling that Mr. Goldstein have access to certain minutes. Now, I shall assume that has been complied with, unless he brings it to my attention, and that will apply to both sides in this case about the inspection of documents. But I do not want this record closed and the argument made that somebody was ordered to do something, and the record does not show affirmatively that it was done. I will assume it has been done unless the contrary is made to appear."

This liability is a liability on whatever the contract states as to patent protection. I stated there were two lawsuits that indicated the seriousness of this situation, and they were both up in Michigan. I have reference to the Kellogg suit, with respect to manual switchboards.

The Western Electric, to my knowledge, has never

set up a reserve for contingencies to protect itself against infringements when manufacturing this apparatus because I understand that that liability is the liability of the American Company. I don't know whether the Western Electric set up any reserve for contingencies against that same sort of an infringement of the same sort of apparatus sold to the independent companies, which it does guarantee. (Mr. Goldstein stated that Western Electric does not set up such reserves for contingencies. The Court said as no one denied that statement they would assume it is a fact.)

Dr. Jewett's testimony will speak for itself on whether it actually cost the American Telephone and Telegraph Company ten million dollars to acquire the General Electric and Radio Corporation patents as shown in additional item B on Exhibit A-199. It is my exhibit but the word "cost" means just what Dr. Jewett said on those pages referred to. I understood Dr. Jewett to mean that over this period, and for a long time before, the D. and R., the Laboratories and the Western, had spent more than that [fol. 6979] amount—or approximately $9,000,000, say through this period alone on that type of research, and when we came to acquire from the General Electric and the Radio Corporation their ideas, they would not sell them for any price. They would not give them to us for any price, so we gave up in that connection ideas on which we had spent, as Dr. Jewett said, I think in the record there, nine to ten million dollars to get these rights for the associate companies.

That nine or ten million dollars which was spent by the Development and Research Department itself, or was paid for by the American Telephone and Telegraph Company to the Bell Telephone Laboratories in charge of the Development and Research is included in the license contract expenses. I claim this as an additional credit because we were not obligated to do what we did here in acquiring those patents.

"Q. That is the A. T. and T. made a deal to turn over something that the licensees are paying $10,000,000 for to get something from the General Electric, and for that you say the A. T. and T. is entitled to a separate credit from the licensees?

"A. No if is not that, Mr. Goldstein."

It is this: the job that the American Company had in those years was to explore this whole matter of the radio and the new things in the electrical communication art, to advise the associate companies as to whether there was anything in this matter that would affect their plants and to clear the situation for the associate companies. The American Company had finished its task, when it did that. There was no obligation upon the American Company to go on and to give us these ideas to the General Electric, or to anybody else.

"Q. Who paid for those ideas?"

The ideas were the by-products that developed from an entirely different undertaking. The Development and Research Department did a real job of investigation, to give to the associate companies the satisfaction that there was nothing in the radio that should make them uneasy about their telephone plants and their telephone setups. Now, the American Company might have stopped there. But it [fol. 6980] had all of these ideas. It had all of these by-products, it might have stopped right there, and said, "We will not do anything with them beyond that." The money that it spent in making this investigation was to satisfy the companies on that one point. Now, it took the by-products, and it went one step further, it said, "We want to give to the associate companies the benefit of these by-products ideas", and it took the ideas, the by-product ideas that it had, that it might have sold to other people at a considerable sum of money, and traded them with the General Electric and the Radio Corporation of America to get the valuable patent rights for the associate companies. Now, there was no obligation under the license contract for the American Company to do that. It was away beyond what the license contract requires the American Company to do, and that is why I say we rendered them a very special service there in making these things available.

"Q. Mr. Heiss, if the A. T. and T. makes the investigation in the radio field and charges all the expense to the licensees, to satisfy them that there is nothing in the radio field that is going to hurt them, and as a result of this investigation the A. T. and T. get an idea, gets ideas, and the A. T. and T. can sell those ideas for ten million dollars, it is your thought, is it, that the A. T. and T. can

keep the ten million dollars, or is entitled to a credit for the ten million dollars?

"A. Looking at it from the approach that we have here, where we are contracting parties, if we give the service to the companies that we agreed to give them under the license contract agreement, and if out of that research we get certain by-products that we can sell in other fields, it is not any concern of anyone what the American Company does with those by-products, that is, if we are contracting parties. That is the property of the American Company to use it as it wants to. But in this instance, it did a very valuable thing, it took those rights and traded them for other rights, and made the patents available to the associate companies when there was no real obligation under the license contract to do so."

[fol. 6981] In connection with footnote (e) in Exhibit A-199 the word "deductions" may be read as "additions" so far as (e) 2 is concerned.

I meant that there should be considered whether or not we should give credit for those items, in getting a fair, conservative picture, but I do not mean that credit should be given for the entire royalties. My own personal view is that you should not give credit for more than about one-third of them.

In C-1 (Exhibit A-199) I say, "Working Capital," and show the figure seventy million to three hundred million dollars. That seventy million to three hundred million on this statement is not the amount in A-169 for the licensee companies but for the licensee companies plus the holding company operations. I said that before you could say that the $1,303,744, which is the difference between the revenue the American Company received and the costs and deductions taken off, that there were other things that must be considered, and I said one of those things (I didn't appraise the amount) that must be considered is the fact that the American Company has cash balances ranging from seventy million to three hundred million. I might as well have said ranging from seventy millions to two hundred and fifty million. That is, the principle would be the same if I had fifty million more or less it wouldn't make any difference. It was just to call attention to this fact, that here was a factor, whatever consideration was to be given to it, that must be considered.

"Q. One other thing about that explanation you made in the record, which you laid down as a basis for your study in A-199, that there is a certain conservatism in your figures, in which you use the average costs, the costs in A-164. 'I did not take into account the cumulated surplus, appropriated and unappropriated surplus, as a capital charge.' You stated that in Michigan—it explains the difference between Ohio and Illinois on the one hand, and Michigan. In Michigan you say you did not make an allowance for the appropriated and unappropriated surplus in the calculations. Am I to understand from that [fol. 6982] that when you figured the cost of capital in Michigan, you took it as applicable to the investment represented by stock, and that the cost was not to be considered as the yield on the stock plus the surplus?

"A. Now, Mr. Goldstein, I think we can shorten the thing very much if you will just refer to City Exhibit 142-E that I put into this case two years ago, and I brought it up to date for you. Now, that City Exhibit 142-E shows that if I followed the method I used in Michigan over the years, I would get some very peculiar costs of money. For instance, I would have gotten for 1926, 8.42 because that was a year in which we put out a stock issue.

"Q. But, Mr. Heiss, that is not the question.

"A. And then I would have gotten, in 1929, an average cost of funds of 4.98, because that was the year we put out a convertible bond issue at 5 per cent.

"Q. My question is not that at all, Mr. Heiss. You testified yesterday, 'In Michigan I did not make this allowance or give credit, I did not give credit for surplus, and that, in itself, accounts for substantially all of the difference, except certain minor items.'

"Am I to understand from that that your cost of funds in Michigan, as you now explain it, did not take into account that whatever you paid was supposed to be a yield on surplus also?

"A. It did not, it did not. I can give you the facts in Michigan. The inclusion of surplus in Michigan, or the inclusion of surplus in this case and not in Michigan, accounted for $3,200,000 of the difference.

"Q. Right.

"A. And the remaining factor—that is, if I had omitted surplus, if I had omitted surplus and compared the cost of money to us, the average cost of funds, omitting the sur-

plus, with the method I used in Michigan, the difference would have been about $700,000.

"Q. But the Michigan method, as you now explain it, would have had the entire cost allocable to the investment in capital stock and not in surplus?

[fol. 6983] "A. Well what I did in Michigan, Mr. Goldstein, I stated I took the three-year period, and I said, 'What money did we get in the three years?' We got $100,000,000 or $150,000,000 of stock, and I put it in at the dividend rate for stock. And I said, 'We got bonds', and I put it in at the rate we got for bonds, and so on, and the Michigan cost of money was just a composite of the base rates, the dividend rates or the base rates on the bonds, including amortization, over the two or three-year period.

"Q. Applied to the actual amount of money you received, and not to that amount of money plus the surplus?

"A. Applied to the actual amount of money that we used in the business.

"Q. That you received during those years?

"A. It was in connection with the actual amount of money received in those years.

"Q. But you applied the per cent to the actual amount of money received in those years, and did not take into account surplus?

"A. I did not take into account surplus, no sir."

Redirect examination.

By Mr. Blackman:

For the year 1923 in the Ohio case, I deducted a million dollars plus $28,905 additional for direct items excluded. In this case I have taken out $772,000. The difference is not over $250,000. That is, my estimate in Ohio was $250,000 greater than the actual deductions that we accumulated in our study in this case, based on the deductions made by each department head for his own department. In Ohio I undertook to do the whole thing and took a lump sum of a million dollars.

Recross examination.

By Mr. Goldstein:

For 1928, I deducted $2,000,000 in the Ohio case and in this case I deducted $907,000. Now, the reason for my larger deduction in Ohio was that I felt, inasmuch as I

[fol. 6984] was making an estimate, I ought to include in that estimate something reflecting the growth of the business. For 1924, in Ohio, I estimated $1,200,000, and in this case used $751,888. In Ohio for 1925, I used $1,400,000, and in this case used $864,890; about $500,000 difference. For 1926 I used in Ohio about $1,600,000, and here I used $942,486; for 1927, I used in Ohio $1,800,000 and I used here $859,528; for 1928, I used in Ohio $2,000,000, and I used here $907,149. For 1929, I used in Ohio $2,250,000, and used here $1,056,028; for 1930 in Ohio I used $2,500,000 and here used $1,152,350; for 1931 in Ohio I used $2,500,000 and here I used $750,011. The last year is not comparable, because I have excluded there the factor in connection with the large amount of money which we had available in New York, and which I did not charge up against the license contract.

"Q. But the difference of that factor is an additional $700,000 there?

"A. I think it amounts to $700,000 or more, but it all goes to show, Mr. Goldstein, my conservatism in the Ohio case where I was on my own.

"Q. Yes.

"A. And in this case I was at the mercy of my attorneys, and I had to make the deductions as they outlined the specifications."

In connection with the Ohio case, I discussed the matter (but not the deduction) with the heads of the departments. As I said a while ago, this matter of separating expenses here, license contract expenses from other expenses, was quite a mystery, and the department heads could not tell me very much.

"Q. Do you have the same attorneys here as you had in Ohio?

"A. Yes.

"Mr. Blackman: I wasn't in the Ohio case."

[fol. 6985] Redirect examination.

By Mr. Blackman:

In the Ohio case I undertook to do this thing myself after consultation with the heads of the departments. In this case counsel insisted that the head of each department make his own allocation of the amounts for which he was responsible. That is the difference.